



OVERCOMING KC-10 FORMAL TRAINING UNIT  
PILOT PRODUCTION CHALLENGES

GRADUATE RESEARCH PAPER

Robert D. McAllister, Major, USAF

AFIT-ENS-GRP-13-J-6

DEPARTMENT OF THE AIR FORCE  
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Major, USAF

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\_31 May 2013\_  
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## **Abstract**

Air Mobility Command operates two separate KC-10 Formal Training Units (FTU) at McGuire AFB and Travis AFB that are subject to unique challenges. These KC-10 FTUs continually operate behind published syllabi timeline, with severe training resource limitations, simulator capacity restrictions during planned upgrades, large fluctuations in pilot student load and unreliable event scheduling. The purpose of this research project was to analyze the root causes of these pilot production delays and seek to develop feasible recommendations to maintain an optimal on-time pilot graduation rate.

This exploratory mixed method case study highlighted crucial delays in the Aircraft Commander pipeline by analyzing On-Time Graduation rates over a three year period from Fiscal Year (FY) 2010 to 2012 at each FTU. The extent, impact and source of delays were examined via both quantitative and qualitative assessment. The sources of these delays include lack of availability of KC-135 Receiver Air Refueling activities, unbalanced Programmed Flying Training flow across fiscal years causing large variations in student workload beyond capacity limitations and the vital need for Air Force Reserve Command FTU manpower authorizations with dedicated funding to help overcome these challenges.

*To my Father*

*Grace and Peace*

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Robert D. McAllister

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## OVERCOMING KC-10 FORMAL TRAINING UNIT

### PILOT PRODUCTION CHALLENGES

#### I. Introduction

*"I'd hate to see an epitaph on a fighter pilot's tombstone that says, 'I told you I needed training'... How do you train for the most dangerous game in the world by being as safe as possible? When you don't let a guy train because it's dangerous, you're saying, 'Go fight those lions with your bare hands in that arena, because we can't teach you to learn how to use a spear. If we do, you might cut your finger while you're learning.' And that's just about the same as murder."*

- Lt Col Lloyd "Boots" Boothby,  
USAF

*"I have flown in just about everything, with all kinds of pilots in all parts of the world - British, French, Pakistani, Iranian, Japanese, Chinese - and there wasn't a dime's worth of difference between any of them except for one unchanging, certain fact: the best, most skillful pilot has the most experience."*

- Maj Gen Chuck Yeager, USAF

#### Air Mobility Command Training

As the Department of Defense (DoD) continues to organize, train and equip for future operations in a fiscally-constrained environment with limited resources, the United States Air Force and specifically Air Mobility Command (AMC) will have to train its functional aircrews in an even more efficient process to overcome these inherent challenges. Tanker assets are already both highly tasked and in critical demand for National Security interests, with available tanker aircrews being an important part of that

required force projection. Proper aircraft availability is normally the driving force to meet these mission requirements; however, in the recent past aircrews have become the limiting tasking factor when they are unavailable due to numerous situations.

Properly training aircrews to safely and effectively operate their weapons system platform has been foundational to the United States Air Force mission since its inception. Furthermore, operational commanders at all levels have both a duty and an obligation to ensure their aircrews are the best equipped and best trained to overcome all aspects of future engagements. Developing highly-qualified aircrews involves a rigorous and integrated program of ground-based fundamental knowledge training, sound application of learned principles in simulator-based profiles, and normally culminates in actual flight operations in order to gain a real-world foundation. Tangible and beneficial flight experience is vital to ensure AMC aircrews are up to the task for future missions in hostile environments.

Multiple issues have become driving factors to transfer actual flight training over to greater accomplishment of these required events in the simulator. Reduced budgets, rapidly escalating fuel and flying hour costs, and holistic environmental concerns have led to the migration of more training occurring in simulators (AMMP, 2012). Its positive effect has included in lower actual flying costs by reduced demand for live training sorties, diminished operational risks associated with these flights and improved aircraft availability (AMMP, 2012). AMC has already reduced flying hour requirements by incorporating training events in in simulators with high fidelity through planned equipment upgrades to the max extent possible and has saved 112,000 flight hours and

\$1.3 billion through the process from recent FY06, 08 and 10 (Fiscal Year) analysis (AMMP, 2012).

AMC acknowledges in their Training Simulation Roadmap from the Air Mobility Master Plan 2012 that most civilian airlines have migrated 100% of their training to simulators so that a newly hired pilot's first aircraft flight will occur with passengers on board in service of the airline. Conversely, they also recognize that our Mobility Air Forces (MAF) aircrews begin with less experience than their airline counterparts and more importantly that our missions are much more complex to train for and include events such as formation, air refueling, assault landings, air drop and tactical maneuvers (AMMP, 2012). In the KC-10 community, increased levels of effort are required to effectively teach formation and both tanker and receiver air refueling events as these are the most complicated, time-intensive and at times dangerous aircraft sorties. In line with the goal to migrate more training to the Weapon System Trainers (WST), the KC-10 simulators have been updated over the past 3 years with improved visual systems and flight software enhancements to achieve more realistic formation and receiver air refueling modeling presentation. AMC will need to further modify and adapt its aircrew training programs not only for the long-term future, but also to become more innovative, efficient and streamlined especially in response to resource constrained drivers like sequestration.

### Sequestration Impact

Sequestration was part of the Budget Control Act of 2011 that became effective on 1 March 2013 and will have tremendous consequences for both DoD and the Air

Force. The program enforces scheduled cuts to the federal budget of \$1.2 trillion over 10 years and \$85 billion for FY2013 (Black, 2013). Acting Under Secretary of the Air Force Dr. Jamie Morin and Air Force Vice Chief of Staff General Larry Spencer provided clarification in a revised memorandum on 11 March 2013 on how the service plans to proceed in an unclear and unprecedented resource constrained situation (FY13 Memo, 2013). General Welsh, Chief of Staff of the Air Force, has explained to Congress how the nine percent budget cut across all DoD programs with no flexibility to determine where to trim excess waste will have a potentially crippling effect on readiness (Black, 2013). The Air Force alone will have to manage \$12 billion in reductions coupled concurrently with a shortfall of over \$1.8 billion in their overseas contingency operations account (FY13 Memo, 2013). Senior leaders acknowledge that major impacts can't be avoided to both personnel and unit readiness with such drastic measures.

Undoubtedly, sequestration will impact the capability of operational flying units to effectively train with limited available flying hours, but also diminish their readiness capability to rapidly project global air power at a moment's notice. Gen Welsh has stated that "some flying units will start to cut back on training immediately to protect the readiness of units scheduled to deploy and those with key mission responsibilities" (Black, 2013). The Air Force's top personnel chief, Lt Gen Jones, testified on the subject of reduced flying hour program for operational and training units plus their associated effects to a House Armed Services Subcommittee military personnel hearing on 27 February 2013. Lt Gen Jones stated that an 18 percent decrease in FY13 flying hours ends up in an actual 30 percent reduction in flying hours since it won't be implemented until almost halfway through the FY with a 1 March 2013 start date. This reduction will

equal to 203,000 flying hours not being flown that were originally programmed (Palacios, 2013). He also stressed that units and their aircrew could swiftly go down to basic qualifications and not be fully combat ready for their aircraft or mission (Palacios, 2013). Lt Gen Jones predicted that it could take up to six months to get those units back up to a combat-ready status while the furlough of dual status technicians could leave a negative lasting impression on units and their personnel (Palacios, 2013). The Air Force's goal is to limit, decrease or cancel all activities that are not deemed mission essential/critical to funding wartime operations (FY13 Memo, 2013).

Dr. Morin and Gen Spencer stated in their memo: "Readiness impacts will be severe and long-term under the best of scenarios; we must do everything in our power to avoid compounding negative effects through inefficient implementation" (FY13 Memo, 2013). Remaining Air Force Operations & Maintenance (O&M) flying hours will be allocated for high-priority events such as Secretary of Defense ordered missions and deployments, nuclear deterrence operations, Continuity of Government/Operations and initial training, to include Formal Training Units (FY 13 Memo, 2013). This could lead to many units terminating flight operations by standing down, tiered-readiness plans and some organizations not fully combat capable by May 2013 (FY13 Memo, 2013).

MAJCOMs (Major Commands) will have to architect plans to regain combat skills in FY14 while creatively maximizing every training opportunity through increased utilization of simulators and part task trainers when possible. Instructor upgrade and requalification transition courses could be canceled to focus on the sole objective maintaining initial qualification training at a high level (FY13 Memo, 2013).

The KC-10 Formal Training Unit (FTU) falls under the O&M budget and future advanced upgrade training courses could be potentially affected by sequestration restraints. With a directive mandate by the ranking Senior Leaders of the Air Force to be more efficient in how we operate and train aircrews because of sequestration, this could be a strong catalyst to further analyze how Formal Training is best conducted with these extremely limited resource pool. One of the biggest challenges of sequestration is the massive amount of uncertainty that wreaks havoc on normal military strategic planning for both training and programming. Lt Gen Michael Moeller, Deputy Chief of Staff for Strategic Plans and Programs, echoed this sentiment when during his 28 February 2013 testimony before the House Armed Services Committee: “My number one concern from a strategic planning and programming perspective is the unprecedented levels of uncertainty” (Salanitri, 2013). He characterized the pending DoD budget crisis with its unknown effects on planning being like “painting a color-by-numbers picture, while blindfolded, in the back of a C-130, while flying through a thunderstorm” (Salanitri, 2013). Necessity drives innovation and the Air Force will definitely need creative solutions to maintain a highly-capable and trained crew force during sequestration and subsequent years.

#### Formal Training Unit Background

Tanker aircrew development traditionally begins with an initial FTU pipeline for initial qualification, requalification and upgrade training. Most Air Force FTUs fall under Air Education and Training Command (AETC) for operational control in an environment focused mostly on providing a reliable and consistent learning platform.

For example, both KC-135 and C-17 FTUs are collocated at Altus Air Force Base (AFB), Oklahoma, and are operated by AETC with a vision clearly defined to provide the best student training to ensure they learn how to safely operate their respective aircraft. AETC does not fill an operational tasking requirement which provides a boundary enabling them to fulfill their mission of initially training the foundation for AMC war-fighting units. Unlike their KC-135 tanker partners who follow the AETC model, the KC-10 FTUs have not been owned by a training command, but rather have historically conducted their training procedures while being owned by the operational command such as Strategic Air Command (SAC) and eventually Air Mobility Command. These KC-10 FTUs run into several unique internal challenges since they operate under AMC and not AETC overall control.

### Problem Statement

Training new crewmembers to safely operate the KC-10 while producing them in a timely manner is a complex and difficult assignment for these FTUs. Additionally, when this production is delayed it causes significant impacts to both local Wing capability and overall AMC operational capacity. These KC-10 FTUs continually operate behind published syllabi timeline, with severe training resource limitations, simulator capacity restrictions during planned upgrades, large fluctuations in pilot student load and unreliable event scheduling. The purpose of this research project is to analyze the root causes of these pilot production delays and seek to develop feasible recommendations to maintain an optimal on-time pilot graduation rate.

With a 41% On-Time Pilot graduation rate for Travis FTU and a 74% on-time rate for McGuire FTU in 2010 collectively, AMC and local Wing Senior leadership are interested in improving production in order to not affect worldwide Tanker mission capability. By investigating this KC-10 FTU training process, the primary goal is to harness these constrained resources by taking a broad view to increase efficiencies while gaining the crewmember to the operational squadron on-time if not faster.

### Research Focus

There must be appropriate analysis boundaries enforced to place emphasis on improving the on-time graduation rates. First, there are several classifications of pilots in formal courses encompassing a broad range of experience with each location training up to 100 pilots per fiscal year. There are currently seven different formal KC-10 pilot training courses ranging from the least demanding Senior Officer Course (SOC) to the KC-10 foundation of the co-pilot Pilot Initial Qualification (PIQ) course. Normally, there are not significant delays impacting copilot on-time graduation rates, classified as PIQs, nor are there delays in the SOC programs. There also are Instructor Aircraft Commander (IAC) and Pilot Requalification (RQ) programs, but unfortunately traditional Aircraft Commander (AC) courses have recently had significant delays that can impact aircrew availability.

This research will narrow its scope to these AC upgrade courses consisting of the Pilot Checkout Course (PCO) which transitions a PIQ to become an AC and the Aircraft Commander Initial Qualification (ACIQ) which takes a previous AC in another weapons system by adapting them to a new mission skill set in the KC-10. These two courses

were chosen for analysis because they generally take the longest to complete with a high demand for training resources. This research will also restrict its data input to cover a three year period from 1 October 2009 to 30 September 2012 encompassing the FY10-FY12 pilot training workload at both Travis and McGuire FTUs. This extended time period for analysis should help build a proper sight picture of the associated delay problems at each location for comparison purposes.

### Research Objective & Questions

The overall objective of accomplishing this research is to identify the sources of delay in the current KC-10 FTU model which could lead to higher on-time pilot graduation rates. Subsequently, a secondary goal would be to save training resources while providing the finished pilot faster to the operational KC-10 squadrons. Moreover, this analysis desires to provide realistic and practical solutions to diminish these delays.

Multiple questions must be postured in order to achieve the overall objective. The following questions will hopefully guide the research down the right path in its investigation:

1. How many and how extensive were the delays for the PCO & ACIQ courses?
2. Why did these delays occur at each FTU?
3. What are the root causes, discernible trends or circumstances associated with these delays?
4. What courses of action can be implemented to reduce these delays?

### Assumptions/Limitations

There are a multitude of assumptions and limitations that will need to be taken into account during this research. There are some basic assumptions that must be made in order to accurately describe and effectively scope the research. A baseline assumption is that AMC is responsible to provide the required training resources to accomplish effective and efficient KC-10 FTU operations. It also assumed that the intent of the FTU process with its best efforts is to finish the pilot courses on-time, if not early, with respect to the scheduled completion date. Another assumption focuses on the fact that scheduled flight training will be normally accomplished during the Monday-Friday work week in line with the syllabus and flying on the weekend should be the rare exception, not standard operating practice, to overcome late graduations or deficient training.

Another assumption is that AMC will not dramatically modify the KC-10 FTU operations by increasing the respective wing training aircraft allocation or significantly adding more instructors to the FTU cadre. It also is assumed that AMC will not directly release either the FTU operations themselves outright or allowing dedicated KC-10 aircraft to become part of an AETC FTU model. Furthermore, it is assumed that AMC will not consolidate the FTUs into one primary operating location due to budgetary limitations, congressional concerns and manpower restrictions. Ultimately, the local wings and AMC have a shared and vested interest in graduating pilots on-time for increased warfighter readiness.

A host of issues enforce limitations while conducting this FTU delay research. This investigation will not focus on the Flight Safety contractor portion of formal training. Though these Flight Safety representatives have been of great assistance during

this research, it most likely is not possible to readily change the requirements of their contracts to alter those procedures. There also is privileged company information that can't be revealed or discussed because of contractual obligations. Conversely, student flow through the Flight Safety program with simulator limitations must be addressed during statistical analysis.

Another limitation to constrain this research involves not singling out specific sortie cancellation sub-problems like actual maintenance breaks (i.e. left hydraulic pump failure). Analysis will address sortie cancellations during training, but will remain at a broad level to ensure a shared perspective of the data. This research will not focus on the impacts of or surrounding rationale of the Tanker Airlift Control Center (TACC) to vary tasking levels for contingency needs. Likewise, another similar limitation is that the high Central Command (CENTCOM) deployment tempo on the KC-10 community can't be considerably reduced to improve local wing continuity training, aircraft availability or FTU manpower to increase on-time graduation rates. These external factors of real-world scenarios place a severe demand signal on the commitment rate of the KC-10 aircraft plus their assigned aircrews. While these are influential issues, they are not easily removed and are expected to remain at these levels for the near future.

Finally, the author must remain neutral and open-minded during the in-depth analysis to remove any personal bias during this research project. As the previous Chief of FTU for two years at Travis AFB prior to beginning this AFIT program, there is a working knowledge of the formal training procedures during this recent time period combined with an understanding of potential resource limitations for these courses. Nevertheless, in spite of this insight the researcher used the previous experience as a

motivational asset to evaluate the KC-10 FTU system as a complete entity while intending to remain entirely independent and open to what the data analysis truly revealed. The author's definitive goal is to train these crewmembers the right way at the right time with the right amount of resources while maintaining the high flight standards the KC-10 community has modeled for the past 30 years of distinguished service.

### Implications

This research project's intent was to provide critical and detailed analysis of recent KC-10 FTU operations at both McGuire and Travis locations to highlight challenges they continually encounter that may not yet be fully articulated to Senior Wing and AMC leadership. By statistically scrutinizing each location and comparing it to published Air Force regulations and initial syllabi, the goal is to gain valuable comprehension of the delay problems while objectively identifying potential weak nodes or bottlenecks that are slowing the overall FTU pilot production process. Additionally, possible business process improvements via feasible recommendations could maximize training program efficiencies despite the negative consequences of extensive resource limitations arising from sequestration impact. There is an immediate return on investment when efficiently-used training resources in a fiscally-pressured environment can improve the KC-10 FTU concept of operations and still increase on-time pilot graduation rates for the war fighting commands. In turn, AMC and DoD gained tanker availability will bolster National Security to meet both power projections currently being supported and those destined to occur in the future.

## II. Literature Review

*“Air refueling enables and multiplies the effects of airpower at all levels of warfare. The MAF’s AR capability makes possible the intertheater air bridge operations needed to support large deployments, humanitarian assistance, global strike, or the long-range airdrops of paratroopers and their equipment without reliance upon intermediate or in-theater staging bases.”*

- Air Refueling Roadmap Assessment  
Air Mobility Master Plan 2012

### Chapter Overview

This section focuses on the relevant literature review concerning formal training in the KC-10 community. It begins with a baseline background exposure to the development, implementation and evolution of its FTUs and the KC-10 weapon system itself. There also is elaboration on past and recent concepts to improve the operations and efficiency of these FTUs and related training resources. Then there is a pending transition revealed on where AMC wants to transform its aircrew training with its MAF 2015 Training Plan. The core vision and principles of the MAF 2015 Training Plan help to enlighten where both KC-10 formal and continuity training should be aligned to be most productive in the near future. The section concludes with a thorough review of pertinent trackers, guiding instructions and applicable topics that directly influence the KC-10 FTU framework. The primary intent of this literature review is to set the context of how the KC-10 FTUs developed since their creation, where AMC/A3T is vectoring its

future aircrew training vision and the important stakeholders that affect the period of time that this research encompasses.

### KC-10 Development

The KC-10 Extender initial development began in response to the Air Force's determination there was a greater need for critical air refueling capacity to support military airlift as a result of an identified shortage during Operation Nickel Grass in 1973. Operation Nickel Grass was the U.S. emergency resupply of Israel with needed war fighting equipment transported long-range by C-5s and C-141s during the Yom Kippur War in October of 1973. At the time, the C-5s were capable of air refueling, but the C-141As were not which limited both capacity and capability during the operation. Afterwards the decision was made to stretch them as C-141Bs for extra cargo capacity and also added the air refueling capability to increase their range (Steffen, 1998). The USAF decided to pursue a new tanker by seeking concepts for an Advanced Tanker Cargo Aircraft (ATCA) in 1974 (Holubik, 1988). A fundamental premise of the program was to use an already existing commercial wide-body platform like the 747, DC-10 or L-1011 with greater emphasis on the tanker aspect and less on the cargo capacity of any airplane (Holubik, 1988). This would minimize overall development costs for the DoD and try to keep the aircraft a commercial "off-the-shelf" derivative as much as possible. In December of 1977 as part of the ATCA competition the McDonnell Douglas DC-10 tanker was chosen over its Boeing 747 tanker counterpart primarily since it could operate in shorter airfields with a maximum fuel load even though it could not carry as much outright cargo (Steffen, 1998).

The Air Force only ordered six KC-10s which was extended by an exercised option to buy six more in FY81 and then another 4 aircraft in FY82 for a grand total of 16 as part of the initial purchase. The KC-10A made its first flight in July of 1980 en route from Long Beach, California to Yuma, Arizona where it would undergo 617 hours of flight testing during its pre-delivery test program (Holubik, 1988). Finally, in March of 1981 the Air Force and SAC accepted contractor delivery of the first KC-10A Extender to the opening Main Operating Base (MOB) of Barksdale AFB, Louisiana. SAC had already handpicked the initial KC-10 cadre and by November of 1981 it became the first fully operational KC-10 wing. During this timeframe, the DoD was analyzing its National Airlift Policy with known limitations in terms of strategic airlift. An additional 44 KC-10s for a final tally of 60 total in the USAF inventory were purchased in FY83 as part of a multi-year contract through FY87 to assist in filling this airlift gap with the inherent cargo flexibility of the weapons system (Holubik, 1988).

The decision to purchase another 44 aircraft for the most part based on cargo capacity deficiencies resulted in internal USAF sources of conflict between MAC and SAC on direct ownership of the additional KC-10s. Gen Lew Allen, USAF Chief of Staff, decided that SAC should retain final ownership and basing rights for the remaining KC-10 fleet (Holubik, 1988). On the whole, they normally operated under SAC control for tanker operations, but were on loan to MAC when operating on pure cargo-only missions. There still were occasional differences of opinion on maintenance responsibility for repairs when under MAC-controlled missions and who had overall command and control authority on dual-role tanker/cargo mission (Holubik, 1988).

Ultimately, two other SAC main operating bases would be chosen and become operational during the 1980s. March AFB, California would become the second wing to receive KC-10s and was activated in March of 1982. Seymour Johnson AFB, North Carolina was the last wing to become activated in October of 1985. Robins AFB, Georgia was surveyed as a possible fourth MOB location, but was never initiated upon as the fleet size stopped at 60 aircraft (Holubik, 1988). The aircraft were equally split with 20 at each operating location, although one KC-10 was completely lost due to a ground refueling fire accident in September of 1987 (Steffen, 1998). Thus, there are only 59 KC-10As remaining in the inventory (KC-10 Factsheet, 2011).

SAC had difficulty fulfilling all the aircrew requirements for the new KC-10, but was able to partially offset this problem by their decision to have the crew force structure be divided 50-percent active duty and the remaining 50-percent to reside in reservist billets (Holubik, 1988). There has always been a strong working relationship in the KC-10 community between the active duty airmen and their reservists counterparts both on the aircrew and especially on the maintenance side as well in terms of sortie generation. This influential early decision by SAC leaders laid the footprint for total force integration over 30 years ago and still is a trademark of current KC-10 business practices.

#### KC-10 FTU Foundation

The roots of the KC-10 training program can be found in civilian airline operators that already were successfully operating the DC-10 in domestic and international service. This most assuredly was the case particularly for pilots that were introduced to learning

the basics of the KC-10 in simulator training. The first contract for the aircrew training system was given to American Airlines for a period of five years in July of 1980 (Holubik, 1988). Additionally, with an emphasis to utilize existing off-the shelf systems to lower development costs, the Air Force decided to acquire and modify existing commercial flight manuals instead of creating them on their own. The core of these flight manuals are still in use today with a commercial flavor that is mildly different from most other military flight manuals (Holubik, 1988).

Like most new weapons systems being fielded for the first time, it took a significant amount of time to fully develop the associated infrastructure and related support programs for the KC-10 before they were running smoothly in a consistent manner. Most essentials of the KC-10 training system were either programmed or fully operational by June of 1981 at Barksdale AFB (Holubik, 1988). The Air Force's permanent training facility for the contractor simulator portion was not ready for utilization until February of 1983. The new simulator for KC-10 pilot training arrived at Barksdale in November of 1982, but had to be placed in storage as the building was not yet ready.

During this transition period in the early stages of KC-10 training development, the handpicked SAC pilots were trained at American Airlines facilities in Dallas, Texas (Holubik, 1988). Additional crewmembers likewise trained at an interim facility on Barksdale that had a cockpit procedures trainer, computer-based training devices for teaching self-paced courses, a boom operator (BO) trainer and a cargo loading trainer (Holubik, 1988). This contractor training helped feed the first Combat Crew Training School (CCTS), precursor to FTU, which was established at Barksdale AFB.

As the KC-10 fleet began to mature to its final size of 60 so did the accompanying training programs and systems. With 20 aircraft split equally between each of the three MOBs of Barksdale, March and Seymour-Johnson AFBs, the training programs at each base grew as well. CCTS functions based inside of the operational squadrons would be created at both March and Seymour-Johnson AFB with each location also having contractor-supported simulator training along with devices for flight engineer and boom operator training. Essentially, there were three separate CCTS schoolhouses coupled with the contractor-supported training pipeline at their location. The associated reservist squadrons at each location would also eventually operate their own smaller version of CCTS operations to support training their crew members.

Another novel concept that was integral with the KC-10 Aircrew Training System (ATS) was that its simulator portion of training was never taught by Air Force instructors. In their desire to utilize already detailed and organized training plans, their use of commercial programs not only saved resources, but also led to greater continuity benefits as the contractor supplied instructors did not have near the same turnover rate as their Air Force counterparts (Nullmeyer, 1991). The contractor provided the required academic instruction and simulator training to properly prepare the students for success during actual flights at CCTS. If a student encountered problems during their CCTS portion of training and failed to meet requirements, then the contractor would provide additional training at no cost to the Air Force. In 1991 SAC and the Air Force were both very satisfied with McDonnell Douglas' performance as the prime contractor for the KC-10 ATS program (Nullmeyer, 1991). McDonnell Douglas had replaced American Airlines as the KC-10 ATS program manager. There was a general characterization of

mutual trust and cooperation to build the best training program possible between the Air Force and the McDonnell Douglas contractor (Nullmeyer, 1991). There was a transition period right around the corner for tankers and the KC-10 that occurred after the first Gulf War and the end of the Soviet Union.

### AMC Integration & Initial KC-10 Operations

On 1 June 1992, Air Mobility Command was activated and formed at Scott Air Force Base, Illinois. It combined the wide-reaching airlift elements of Military Airlift Command (MAC) with the KC-10 and KC-135 tanker forces previously assigned to Strategic Air Command (AMC Factsheet, 2012). AMC provides Global Reach through worldwide cargo and passenger movement, air refueling expertise and expedient aeromedical evacuation. AMC also assists with humanitarian efforts both in the United States and around the world by providing relief assistance for hurricane, flood, and earthquake victims (AMC Factsheet, 2012). The KC-10 as a dual-role aircraft has participated in airlift, tanker and humanitarian mission sets over the past 20 years as part of AMC. It has a very limited role in actual aeromedical evacuations and is usually only utilized in circumstances where no other aircraft is available nearby for the crucial move of injured individuals.

In terms of command and control, the KC-10 tanker fell under the centralized agency of the Tanker Airlift Control Center (TACC) which was activated on 1 April 1992 (TACC Factsheet, 2008). TACC consolidated command and control operations that previously were located in numbered air forces or airlift divisions (TACC Factsheet, 2008). TACC is the execution arm of AMC that plans, schedules, directs and tracks a

fleet of more than 1300 aircraft including 59 KC-10s and 414 KC-135s to facilitate global reach (TACC Factsheet, 2008). Though the KC-10 only comprises 12% of the MAF tanker fleet in actual aircraft since it can carry a fuel load almost double of its KC-135 counterpart it actually represents 20% of the maximum fuel off-load capability (AMMP, 2012) and (KC-135 Factsheet, 2011). TACC's organization of 700 team members help to coordinate 24-hour operations of mobility aircraft dispatched all around the world.

AMC initially divided its active duty resources between two numbered Air Forces, the 15th Air Force at Travis AFB, California and the 21st Air Force at McGuire AFB, New Jersey (Steffen, 1998). After the creation of AMC, the KC-10 units and aircraft consolidated from three main bases to only two. AMC placed 32 KC-10s on the east coast at McGuire as part of the 305th Air Mobility Wing (AMW) and on the west coast, the "Gateway to the Pacific", 27 KC-10s became part of the 60th AMW at Travis (Steffen, 1998). Each location has two active duty squadrons and two reservist squadrons that operate the KC-10 as an active-associate relationship. McGuire received its first actual KC-10 transfer in October of 1994 (Steffen, 1998). McGuire stood up the active duty 2nd and 32nd Air Refueling Squadrons (ARS) along with the reservis 76th and 78th ARS. During 1994 and 1995, Travis began accepting KC-10s and they were operated by the active duty 6th and 9th ARS plus the 70th and 79th reserve tanker squadrons (Steffen, 1998). With the bed down of the KC-10s at each location came military construction funds to build new squadron facilities along with needed aircraft maintenance buildings.

During this timeframe in the mid-1990s the KC-10 was kept fairly busy as a dual role platform in both kinetic operations requiring extensive tanker support along with airlift requirements to support different global theaters. As the fleet of approximately 200

C-141s were slowly being decommissioned in the 1990s and early 2000s, there was not enough C-17s being built in the production line coupled with the fact that the initial purchase order was only for 120 aircraft (Miller, 1997). As a result, the KC-10 was used quite frequently on channel cargo missions to bridge the gap in the strategic airlift capability shortfall to help overcome this known constraint (Miller, 1997). Concurrently, the KC-10 community also experienced increased demand for its tanker utilization in support of various conflicts mainly in Europe and the Middle East. They were engaged in year round support of Operations SOUTHERN WATCH and NORTHERN WATCH to enforce Iraqi no-fly zones.

They also supported Operation DELIBERATE FORCE in September of 1995 to deter Serbian aggression by projecting force out of bases in Italy (Miller, 1997). Additionally, KC-10s were used to support multiple Operation PHOENIX SCORPION contingencies beginning in November 1997 and through 1998 as well. KC-10s deployed to Diego Garcia to support B-52 bombing missions while also assisting with AMC's bi-directional airflow to augment Operation SOUTHERN WATCH air refueling missions and F-117 operations out of Kuwait (TACC media, 2012). These operations were in response to Iraq's decision to not allow United Nations inspectors access to sites of potential weapons of mass destruction (TACC media, 2012).

This kept the KC-10 operations tempo at a fairly high pace during 1997 and 1998 since it was a desired asset with low numbers, but in high demand. Finally, in the spring of 1999 Operation ALLIED FORCE commenced as a coalition of NATO forces to deter the government of Yugoslavia from persecuting the Albanian majority in Kosovo (KC-10 Factsheet, 2011). By May 1999, nearly 150 U.S. tankers had deployed to Europe to

refuel aircraft participating in the operation. The KC-10 flew 409 missions during the ALLIED FORCE campaign and support missions in Kosovo that were extremely reliant on tankers in a very restricted airspace environment (KC-10 Factsheet, 2011).

#### AMC KC-10 FTU Baseline

AMC established two separate Combat Crew Training Schools (CCTS) at Travis and McGuire to train its KC-10 crewmembers (Miller, 1997). They also had to purchase another civilian DC-10 simulator and convert it to military KC-10 specs for operation at Travis. This meant each location has only 2 full-motion simulators at each location to train its pilot and flight engineer (FE) crew force. Major Joseph Miller commented in his GRP from 1997 on his analysis of KC-10 CCTS consolidation that not much had changed in how crewmembers were trained to operate the KC-10. It's amazing that 16 years later for the most part little has transformed in how KC-10 crewmembers have been trained over the last 30 years of its existence beside minor variances in actual procedures or published courses. The core of KC-10 pilot actual flight training still revolves around tanker and receiver air refueling events coupled with transition work and taxi practice.

In 1994 as both McGuire and Travis were being stood up as AMC functional KC-10 bases, the schoolhouses were each embedded as part of the operational squadrons (Miller, 1997). There has always been competition for scarce training resources, but this allowed the CCTS schedulers the flexibility to work with the squadron schedulers to balance out sortie priorities and student makeup to maximize effectiveness. This also allowed the respective squadron commander or director of operations to streamline decision making at one level only to hopefully benefit both the initial qualification,

upgrade and continuation training for all crewmembers. Additionally, each of the reserve units at each location also had separate schoolhouses to train internally their crewmembers both through initial qualification and upgrade courses. Historically, this had been the standard operating practice since initial operational capability.

An AMC Formal School Objectives Tiger Team was established in March of 1994 to analyze the most cost-effective business practice of conducting KC-10 formal training and its results were out briefed to the AMC/DO in September of 1994 (Miller, 1997). It focused on three courses of action regarding the KC-10 schoolhouses. The first option was consolidating CCTS training at a location besides McGuire or Travis. The second option was to establish an active duty organization at McGuire or Travis whose sole mission was to conduct KC-10 formal training. The third alternative evaluated was to place the respective schoolhouses for each location under the control of the Operations Support Squadrons (OSS) instead of the operational squadrons (Miller, 1997).

The report detailed some benefits from consolidating into a single CCTS such as improved standardization of the student produced, potentially reducing the required active-duty CCTS instructors from 30 to 28 needed and would make the formal training more in-line with other AMC major weapon systems at the time (Miller, 1997).

However, there were extremely high costs with collocating a CCTS at one base such as allocating 6 aircraft dedicated to formal training along with a squadron needing 152 personnel (Miller, 1997). There also noted high funding dollars needed for either construction of a completely new 2-bay facility at a separate location or at either MOB upgrading the simulator facility to accommodate a third simulator for qualification and continuation training. Transitioning to a separate CCTS location would also require new

base infrastructure and building support for the maintenance operation of these 6 dedicated aircraft (Miller, 1997).

AMC determined that it would cost in 1994, \$47 million dollars to consolidate the KC-10 schoolhouses into a separate location like Altus AFB, Oklahoma. Furthermore, it is highly unlikely that AMC would want to release 6 KC-10 aircraft, which represent 10 percent of the entire fleet, to training and thereby removing them from the operational inventory when needed for surge contingency events. They also found in the study that at the time it would cost \$28 million dollars to upgrade either McGuire or Travis to make them into a single CCTS to train all crewmembers including associated TDY costs for students to go on temporary duty (TDY) (Miller, 1997). Consequently, the least expensive option with a cost of zero dollars was to place the respective formal training units under each of the OSS organizations and this course of action was eventually implemented (Miller, 1997). Ultimately, consolidation either at Travis or McGuire or at a completely separate location has been investigated multiple times in the early to mid-2000s by Mr. Gary Kreider at AMC/A3T and was dismissed by AMC senior leadership again in terms of outright cost, political and economic ramifications of moving equipment and personnel along with diminished MAF KC-10 aircraft availability.

During the mid to late 1990s, Travis generally was able to have a better student pilot on-time graduation rate than McGuire mainly due to less severe weather and possibly better maintenance. McGuire was operating under more constraints because of extreme weather impact, maintenance manning and congested airspace conflicts (Miller, 1997). McGuire would have 8 to 10 fenced aircraft available for training on a weekly

basis in 1996. They had 10 for a period of time as the aircraft was modified with the Global Position System to allow both maintainers and crewmembers to train with the important navigation upgrade (Miller,1997). Both CCTS would feel the ripple effect as these fenced trainers were shared between active duty, reserve and CCTS training sorties (Miller, 1997). Over time, the training fence for each location would slowly diminish, but it has occurred more rapidly since the 2009 AFI11-2KC-10 Volume 1 was released and it has enabled a significant transfer of more of these required events to the simulator for pilot continuation training (AFI 11-2KC-10V1, 2009). This also was related to the simulators gaining greater fidelity in its visual representation and recreation modeling of KC-10 flight characteristics, specifically receiver air refueling simulation.

In line with being more efficient in light of decreased resources and reduced military budgets, the KC-10 community began to entertain the notion of integrating the active duty and reserve schoolhouses into combined pipelines. Major Jim Kotowski, former Travis CCTS Chief, researched the option in 1997 based on a cost-benefit analysis. There would be larger economies of scale by combining the two reservist and one active-duty formal training units at a savings of 53 sorties and \$1.2 million dollars in 1997 funds (Miller, 1997). There was initial resistance to combine as it was active-duty Operations Group (OG) driven with McGuire reservist concerns (Fuller, 2003). Eventually by 2006, both McGuire and Travis had combined their reserve and active duty schoolhouses into a single integrated unit. The OSS' used AMC approved Global War on Terror funds to pay for the positions, but the overall student product was perceived to be better and the system as a whole was more efficient with more formal school students per combined training sortie. In general, the reservist formal school instructor brings a

vast amount of KC-10 flight experience and extensive years of general knowledge that may not necessarily exist in the active duty pool of available instructors based on constant turnover because of deployments, TDYs and permanent change of station assignments.

#### Published Guidance & Current Practices

Likewise, KC-10 formal training written guidance has remained relatively constant over its history besides slight wording or course changes. MCI 10-202 Volume 3 for KC-10 Aircrew Training was the initial guidance to AMC aircrews on how to train in the KC-10 after the tankers were integrated from SAC. This was the predecessor to the AFI 11-2KC-10 Volume 1 which was released initially in 1999 whose last copy was published in 1997. Initial qualification training of KC-10 crewmembers has traditionally been broken up into three phases. They have historically consisted of Phase IA, Phase IB and Phase II. Phase IA is ground training with extensive computer-based training (CBT) events combined with multiple Flight Training Device (FTD) sessions, previously known as Cockpit Procedures Trainer (CPT) (AFI 11-KC-10V1, 2000). This phase is run by a civilian contractor who utilizes Air Force coordinated training profiles for this portion. It culminates for KC-10 pilots in qualification or upgrade training with multiple events in the Weapons System Trainer (WST), otherwise known as the simulator, with a successful final evaluation prior to beginning Phase IB.

Phase IB consists of Air Force conducted flight operations including required ground training and knowledge briefings to prepare the crewmembers for their first flight (AFI 11-2KC-10V1, 2009). These sorties are used to enable the student to safely and

proficiently operate the KC-10 and again ends with a required passing flight evaluation before progressing to the next phase. FTUs conduct what has been known as Phase IB training. Phase IA and Phase IB have been combined and referenced as Phase I in the latest AFI 11-2KC-10 Volume 1 released in June 2012. Phase II commences right after the completed evaluation in Phase IB and includes all training necessary to make that crewmember fully mission-ready (MR). Phase II has been integrated into and been redesignated Mission Certification Training (MCT) to accomplish all those items required for complete initial qualification (AFI 11-2KC-10V1, 2012).

One major change that occurred in the mid-2000s is the AMC initiative to execute the Mobility Pilot Development (MPD) program primarily for the co-pilot PIQ students. Its intent was to harness the advanced skills these new pilots graduated from Specialized Undergraduate Pilot Training and enable them to be dual seat certified being trained in both the left and right seat for Phase IA and Phase IB training to include landings and taxiing the KC-10 (AFI 11-2KC-10V1, 2009). A secondary goal was that it would spur more in-unit upgrades at an accelerated pace to Aircraft Commander certification across the MAF. The preferred method for AC upgrade and PCO execution is still through a formal course as part of Phase I (AFI 11-2KC-10V1, 2012). This has levied additional sorties to the co-pilot training profile as it includes the extra sorties and events to be certified in the left seat.

Careful inspection of the AFI 11-2KC-10 Volume 1s back to 2000 reveal that nothing significant has changed for the KC-10 pilot course training length specifications in terms of days allotted for Phase IA and Phase IB. For AC upgrade and pilot requalification courses training should not take longer than 90 days for PCO, IAC and

PRQ students on the active duty side and 180 days for their reserve counterparts, reference Table 1. For initial qualification students in the PIQ and ACIQ courses completion should not take longer than 140 days for active duty students and 180 days for reservist pilots (AFI 11-2KC-10V1, 2012). The reservist students are allotted extra time to account for potential conflicts with civilian job duties, though most are on actual full-time orders and solely dedicated to their KC-10 training at their respective integrated FTUs.

**Table 1 – Training Time Limitations (Days)**  
(AFI 11-2KC-10V1, 2012)

<b>Course</b>	<b>AD Phase I</b>	<b>AFRC Phase I</b>
<b>KC-10 PIQ</b>	140	180
<b>KC-10 ACIQ</b>	140	180
<b>KC-10 PCO</b>	90	180
<b>KC-10 IAC</b>	90	180
<b>KC-10 PRQ</b>	90	180

### Syllabus Development

Another recent monumental change in the KC-10 formal training environment was the actual publishing of approved course syllabi. 14 KC-10 course syllabi for both Phase IA and Phase IB were released on 1 February 2010 after several years of careful coordination between AMC/A3T tanker training, KC-10 Detachment 1 (Det 1) and including AETC C-17 and KC-135 counterparts. This provided a common platform for both students and instructors alike along with senior leaders to have clearly defined

training guidance for KC-10 FTU operations that had never existed before to this detailed level (ACIQ Syllabus, 2010). Previous to this there was a heavy reliance on subjective interpretation of AFI 11-2KC-10 Volume 1, Chapter 2-Initial Qualification Training and Attachment 3-Formal Training Unit Guidance to assist instructors and squadron leaders with making important decisions revolving around student qualification (AFI 11-2KC-10V1, 2009). Overall, feedback was very positive on its implementation and execution as most of these syllabi provided over 30 pages of in-depth direction that was clearly not possible in the aforementioned Volume 1s (PCO Syllabus, 2010). There were very minor revisions to the PCO and ACIQ in July 2011, but this researcher determined these mostly grammatical changes did not affect the core data source of the documents (ACIQ & PCO Syllabus, 2011).

Of note is that each of the syllabi state that “no calendar day assessment for Phase IB training is available due to local variables of sortie availability” (PCO Syllabus, 2011). It further clarifies that the training time limitations as listed in AFI 11-2KC-10 Volume 1 still apply as the final determinant of on-time graduation. The syllabi break them down into actual physical training days instead of consecutive calendar days. The PCO syllabus remain unchanged with 10 days for Phase IA and 23 for Phase IB to equal a total of 33 training days (PCO Syllabus, 2011). The ACIQ syllabus was originally 84 total training days with 52 in Phase IA and 32 in Phase IB, but they added 2 more academic days in Phase IA in the July 2011 syllabus and now the grand total is 86 (ACIQ Syllabus, 2011). Table 2 helps to highlight the training days, but the days listed in Table 1 help determine final graduation status.

**Table 2 – Training Time Allocation (Days)**

**(ACIQ & PCO Syllabus, 2011)**

<b>Course</b>	<b>Phase IA</b>	<b>Phase IB</b>	<b>Total</b>
<b>KC-10 PCO</b>	10	23	33
<b>KC-10 ACIQ</b>	54	32	86

These syllabi also provide guidance on the ideal student count of the training crew on FTU sorties. It states in both the ACIQ and PCO syllabus that the ratio should be two student pilots to one FTU instructor and any deviation from that level should be annotated on the training documentation with actual hour in the seat (ACIQ & PCO Syllabus, 2011). It also elaborates that the sortie cycle is a two day process consisting of one day of mission planning and one day for the actual flight and debrief (ACIQ & PCO Syllabus, 2011). Additional Phase IB flight training days are built into the schedule to allow for switching to/from night flying, weather delays and maintenance cancellation effects. The PCO course is allowed two schedule adjustment days and the ACIQ is given four days (ACIQ & PCO Syllabus, 2011).

For most students, consistent and safe receiver air refueling training is the “critical node” needed in order to graduate on time. Syllabus requirements for a complete sortie are broken down in terms of events accomplished from a time received perspective. A complete sortie for an ACIQ includes approximately 45 minutes of receiver air refueling and 45 minutes of transition time (ACIQ Syllabus, 2010). A complete sortie for a PCO includes approximately 45 minutes of receiver activity and 30 minutes of transition work (PCO Syllabus, 2010). When a sortie may become incomplete due to an activity cancelling or lack of available time for the event, then the FTU

instructor must exercise sound judgment to make this determination for both the sortie and student progression (ACIQ & PCO Syllabus, 2011). With human interpretation, each instructor could make a slightly different decision in terms of sortie completion based on the scenario presented them for that training mission.

Each student pilot must also demonstrate tanker rendezvous and safe tanker autopilot-on and autopilot-off platforms. PCOs and ACIQs also must be day proficient in receiver air refueling before attempting night receiver air refueling and during each course they are required to demonstrate proficiency behind both a KC-10 (day) and a KC-135 (day and night) with autopilot-off conditions (ACIQ & PCO Syllabus, 2011). The syllabus also allows the respective Chief of FTU to authorize an additional sortie when there is an extensive break in training that delays the normal student progression according to normal syllabus flow. This break in training occurs when a student goes 11 calendar days without an aircraft event (ACIQ & PCO Syllabus, 2011). This section helps to provide the framework of how substantial the syllabi were to FTU daily practices while elaborating noteworthy items for consideration as part of this research.

### Data Sources

The first primary source for data points come from the Programmed Flying Training (PFT) Quota which is an excel spreadsheet that is built on a two year cycle (FY10-12 PFT Quota). AMC/A3TF along with A3TK work with both the contractor, FTUs, and Det 1 to determine the PFT for the formal training courses for the following fiscal year (AFI 11-2KC-10V1, 2012). It encompasses all pilot, FE and boom operator (BO) formal schoolhouse courses for the projected FY training pipeline. The AMC

KC-10 program managers then attend an annual PFT conference to analyze both initial qualification absorption rates, requalification distribution and available upgrade slots.

One of the main limitations is simulator availability since each location only has 2 WSTs and they have to be shared between both qualification and refresher training. Once it is final then the A3TF releases it to the contractor, Wing Training, and FTUs for coordination purposes. Local active duty and reserve squadrons will determine how best to fill their upgrade slots for PCO and IAC slots. This PFT Quota is maintained by A3T and updated by the McGuire and Travis Wing Training sections.

The second source of KC-10 FTU data is the Graduation Tracker (McGuire/Travis FY10-12 Grad Tracker) and this excel spreadsheet is maintained by the Wing Training sections along with the FTU who is the primary input on updating the spreadsheet as students graduate on-time or late. The data entry generally occurs when the student pilot has graduated their designated program and either their assigned instructor or a specific folder closeout FTU expert updates the spreadsheet with their specific information.

This Grad Tracker spreadsheet information includes their name, class number and course, assigned squadron, actual Phase IA completion date, actual Phase IB completion date, calendar days in Phase IB and late graduation in comparison to originally scheduled Phase IB completion date. It will also include total scheduled sorties, total hours flown and a tally of hours logged for tanker and receiver air refueling plus transition practice. The Grad Tracker also provides a breakdown of lost activities for tanker and receiver air refueling and the number of actual sortie cancellations because of maintenance, weather or other possible causes. A remarks section provides an area where comments to

AMC/A3T or Wing Training can be included for a very brief explanation on progression issues or late graduation reasons. Table 3 provides a compressed example of a typical Grad Tracker spreadsheet entry though they do slightly vary in format style between McGuire and Travis.

**Table 3 – Grad Tracker Example**

<b>Name</b>	<b>Class #</b>	<b>Sq</b>	<b>Actual Phase IA Comp Date</b>	<b>PFT Phase IB Comp Date</b>	<b>Actual Phase IB Comp Date</b>	<b>Tot Sorties</b>	<b>Tot Hours</b>
Doe, Jon	1001M	AD	30-Oct-09	17-Jan-10	4-Mar-10	13	45.8

The third available source of relevant data comes from the Training Review Panel (TRP) minutes and presentations. Both McGuire and Travis Wing Training sections compile this information in accordance with the AFI11-2KC-10 Volume 1 on a semi-annual basis, but most often on a quarterly basis to be chaired by the OG/CC with minutes to be kept for 2 years (AFI 11-2KC-10V1, 2012). FTU leadership compiles this data and in turn supplies it to Wing Training as part of a complete training review including the KC-10 operational squadrons and other MWS such as the C-5 and C-17 personnel. Though each location again presents their metrics in slightly different formats to their leadership, there is valuable information in the TRP minutes and slides to paint the complete picture of FTU operations.

Late formal course graduations are required to be entered in the minutes or discussed in detail during the TRP (AFI 11-2KC-10V1, 2012). According to Attachment

3 of the Volume 1, reasons for failure to complete the training in the allocated time periods will be fully explained as part of the TRP. Additionally, for official FTU training no training extension time waivers are required if the late graduation guidance is complied with as part of the TRP (AFI 11-2KC-10V1, 2012). This data set is more descriptive in nature, but still can be used to provide a backdrop for each individual quarter analysis. KC-10 FTU practices and procedures need to ensure they remain aligned with where AMC/A3T is projecting future aircrew training.

#### MAF Training 2015 & Beyond

AMC/A3T training division has been working very diligently over the past year to forge a way ahead for future aircrew development leveraging current and innovative capabilities. They have designated this institutional pillar as its MAF Training 2015 initiative with its overall goal to provide a MR crew force built around a foundation of sound airmanship and judgment at all levels (Mayheu BBP, 2012). A3 and AMC senior leadership through review of recent aircraft incidents, accidents and feedback have revealed potential weaknesses in the aircrew training system (MAF Tng 2015 A/TA Brief, 2012). Some of the known gaps have occurred in the areas of general knowledge, procedural applications, technology development and contractual and aircrew instruction (MAF Tng 2015 A/TA Brief, 2012). The existing training system will face continued constrained budgets and the MAF must maximize best practices along with improvements in simulation, modeling and emerging technology (Mayheu BBP, 2012).

Consequently, the MAF 2015 Charter Statement is to “examine MAF training determining areas where investment, development and policy changes provide fully

trained aircrew while retaining MR status in a fiscally constrained and technologically advanced environment” (MAF 2015 Tng A/TA Brief, 2012). They are collaborating with the AMC staff, AFRC/ANG training staffs, AETC, USAF Expeditionary Center Mobility Operations School and Delta Airlines to develop new tools or methods that will better shape the challenging training landscape (MAF 2015 Tng A/TA Brief, 2012). Their five lines of effort will center around enhancing applied knowledge, improving instruction and evaluations, optimizing continuation training, standardizing ATS contracts and refining methods for upgrades and seasoning (Mayheu BBP, 2012).

The KC-10 FTUs have already been a part of some of these leading edge initiatives. Travis FTU was the initial AMC test bed for Electronic Flight Bag (EFB) implementation with the employment of e-readers as an electronic publication device for both instructors and students alike. The FTUs have also worked with Det 1 to streamline training for initial qualification pilot and FE students by providing them additional simulator sessions which focus solely on local procedures such as preflight, formation, radio communications, taxiing and standard flight profiles. These extra WST sessions occur after their Phase IA evaluation, but before they begin Phase IB for in processing. The feedback has been positive for the most part and has enabled a good portion of these students to progress faster through the program since they have more exposure to the local practices, but at a cheaper cost in the simulator versus the actual aircraft. Undoubtedly, these KC-10 FTUs will have to continually seek better ways of accomplishing the training business in spite of shrinking budgets and reduced flying hours. These small, but important FTUs must synchronize with AMC/A3T in relation to

the MAF 2015 Training vision to influence every possible alternative to improve overall on-time graduation rates.

### III. Methodology

*“ If we should have to fight, we should be prepared to do so from the neck up instead of the neck down.”*

- Gen Jimmy Doolittle, USAF

*“ The most important thing is to have a flexible approach...The truth is no one knows exactly what air fighting will be like in the future. We can't say anything will stay as it is, but we also can't be certain the future will conform to particular theories, which so often, between the wars, have proved wrong.”*

- Brig Gen Robin Olds, USAF

#### Chapter Overview

A case study has the focus of detailed analysis of a particular individual, program or event for a defined period of time (Leedy & Ormrod, 2010). Researchers will sometimes focus on a single case so that because of its unique and exceptional qualities can foster a greater understanding or prepare others for acting accordingly in other situations (Leedy & Ormrod, 2010). The intent of this chapter is to provide sound reasoning for why a case study method was appropriate in the diagnosis of the KC-10 FTU pilot production challenges. An exploratory case study of both McGuire and Travis KC-10 FTUs during the same time period from FY10-FY12 over very specific PCO and ACIQ pilot courses will enrich both AMC and local OG leadership with a better comprehension of past operations. This will enable them to have a common collaboration and shared working knowledge of a complicated training process with minimal established data points on how to improve on-time graduation rates.

## Case Study Methods

Normally, case studies are an ideal strategy when “How” or “Why” questions are being posed and the investigator has little control over the events (Yin, 2003). They are also suitable when the spotlight for research centers on a contemporary phenomenon within a real-life context (Yin, 2003). A case study in its purest form can be described as an in-depth investigation and will use different methods to gather various kinds of information in order to make observations (Hamel, 1993). A known major weakness of case studies, particularly when only a single case is involved, is that the findings may not be generalizable to other situations (Leedy & Ormrod, 2010). Another great concern surrounding case studies is a lack of rigor in the analysis or to permit biased opinions to have undue influence on the findings or outcome of the research (Yin, 2003). The researcher must allow the evidence and data to speak for itself while trying to collect as much of it as possible from different sources to provide a broad, but comprehensive platform for examination. Ultimately, the researcher must not jump to conclusions too early or narrow down their focus so much that they fall into the trap of relying on preconceived notions as they evaluate the subject under assessment.

There is much dissension in the academic field regarding the validity of case studies in relation to other research methods. The challenge is that conducting a good case study is a difficult task (Yin, 2003). There is also debate over whether or not generalizations can be made from a single case study. For example, Leedy & Ormrod clearly present their concern over generalizations in regards to a single case. However, Yin states that, “case studies, like experiments, are generalizable to theoretical propositions and not to populations” (Yin, 2003). Yin further clarifies that the case

study, like an experiment, does not represent a “sample” with the imperative mission of a case study to expand and generalize theories (Yin, 2003).

Accomplishing accurate case study research involves an empirical investigation of a contemporary phenomenon within its normal setting through multiple sources of evidence (Hancock & Algozzine, 2011). As part of the data collection in a case study, the researcher gathers information sources on the individual, program or event that is the main target of the inquiry. These data points may come from observations, personal interaction, interviews, relevant documents, past records and associated materials such as photographs or recordings (Leedy & Ormrod, 2010). It is crucial in case studies to gain a deeper understanding of the context surrounding the object observed by analyzing the actual physical, historical, social and economic factors that have affected the operating conditions (Leedy & Ormrod, 2010).

As part of a solid data assessment, usually the researcher will organize the details about the case in a logical order, categorize the data, interpret the data where applicable, and identify patterns to paint a widespread perspective. The final step involves a synthesis of the data in order to provide the backdrop of an overall portrait of the case (Leedy & Ormrod, 2010). Through case studies, researchers hope to gain a superior understanding of situations, programs or events and overall meaning for those involved (Hancock & Algozzine, 2011). By gathering data from separate, multiple and varied sources, the researcher in a case study will aim for convergence or triangulation of the evidence gathered. This triangulation approach is generated by many different pieces of information that must all point to the same conclusion (Leedy & Ormrod, 2010).

### Case Study Application to KC-10 FTU Pilot Production

Case studies have been explained as painting a complete canvas by revealing fragments of puzzle in building a reconstruction of the whole portrait through its parts (Hamel, 1993). Defining the relevant research questions is one of the most important steps taken in a research endeavor (Yin, 2003). The primary goal of this KC-10 FTU research is to determine, “How many and how extensive were the delays for the PCO and ACIQ courses?”. The second primary question is “Why did these delays occur at each FTU” and the third question centers on “What are the root causes, discernible trends or associated circumstances with these delays?”. “How” and “Why” questions are best suited for explanatory investigation and likely lead to the use of case studies, histories, and experiments; whereas “What” questions can be more exploratory and descriptive in relation to case studies (Yin, 2003). Yin argues that case studies, and not just experiments, are possible to be used for explanatory or causal inquiries (Yin, 2003). Finally, Yin counters that case studies can include and even be limited to quantitative evidence and that though there may be philosophical arguments over quantitative or qualitative research inherent value; case studies have a distinctive place in evaluation research (Yin, 2003).

A case study methodology was selected since KC-10 FTU operations are complex in nature with lots of variables that affect the outcome. The three year period for FY10-FY 12 was chosen to observe the contemporary phenomenon within its real life context while analyzing each location for comparison purposes. There are not many data points available for evaluation and it is difficult to accurately describe every variable that can affect student progression through the system. The quantitative data found did not

lend itself to regression analysis; however, descriptive statistics will provide insight into the delay circumstances normally occurring at both McGuire and Travis FTUs.

The three key words of describing, understanding and explaining should be in complete harmony when executing initial theory research involved with a thorough and inclusive case study (Hamel, 1993). This researcher's goal was to compile the facts and describe the data collected to describe the framework of the KC-10 FTU environment. The data reviewed will include historical documents, USAF and AMC publications, relevant news articles, previous KC-10 formal training research, interviews, future initiatives and locally produced, yet relevant, McGuire and Travis KC-10 training products. A mixed method approach of acquiring both quantitative and qualitative data will assist to verify findings. This triangulation methodology will confirm results via demonstrating and interpreting evidence from multiple sources (Hancock & Algozzine, 2011).

As part of the analysis, there will be a discussion of the patterns or trends found in relation to the available data. Additionally, if possible, the researcher will interpret the facts presented while being open to opposing data and not allowing bias as the former Travis Chief of FTU to influence the analysis or outcomes. In summary, the intent is to walk across a bridge illustrating the larger scheme of things by connecting the dots per say if possible on a complicated challenge facing the KC-10 training community. The subsequent chapter will analyze both McGuire and Travis KC-10 FTU operations to completely reveal their current challenges and develop practical recommendations for mitigating potential delays.

## **IV. Analysis and Results**

### Chapter Overview

This chapter will present the analysis of the evidence collected through both quantitative and qualitative data as part of the exploratory mixed-method process. It will highlight the On-Time graduation rate for the PCO and ACIQ courses at McGuire and Travis FTUs during FY10-12. It also will compare the overall On-Time graduation rates for each FTU during this timeframe of research. The impact on the KC-10 enterprise as a consequence of delays for ACs in formal training will be investigated. Then for those graduates that are late, this section presents to what extent they were late. Overall amount of time of days spent in Phase IB at the FTUs for the actual flying portion of training will also be analyzed. A comparison of the actual sorties scheduled and actual hours flown will be referenced to what the recent PCO and ACIQ syllabi recommend for training purposes.

As part of determining sources of delay, qualitative data will be used to explain what is possibly causing these late graduations. Interviews, TRP data and additional documents were the primary form of evidence gathering for this section. Analysis will close with an overall summary of research findings in relation to this case study.

### Data Validation

One of the first priorities in analyzing the quantitative data was to validate the information presented in both the FY10-12 McGuire and Travis PFT Quotas versus what is presented in the critical, but not always entirely accurate FTU Grad Trackers. With 230 scheduled slots and 193 actual PCO and ACIQ students combined for the 3 year

period this meant over 4000 bits of information to be corroborated before subsequent analysis. There were multiple data entry errors, specifically incorrect Phase IA or Phase IB start or completion dates that had to be corrected for both FTU Grad Trackers. Only 2 student entries were unfilled, but the researcher was able to acquire the pertinent sortie and cancellation info to complete the data set.

Another difference to be noted in producing consolidated PCO and ACIQ Grad Trackers was the decision to keep all the information together as an entire set for the fiscal year PFT for all the classes assigned. Hence, some of the actual numbers of trained PCOs and ACIQs will be slightly different from the source McGuire and Travis FTU Grad Trackers since they would stop their count of actual graduates during the fiscal year. This would result in either overlap or missing entries because of the gap between a class finishing Phase IA, for example - ACIQ 1117T, in the end of September 2011, but not scheduled to graduate until December 2011 after the Grad Tracker was turned into AMC/A3T in October once the FY12 began a new cycle. This decision allowed the PFT Quota to exactly match with the consolidated Grad Tracker to keep all data in its entirety for thorough evaluation.

Moreover, in the now consolidated PFT Quota and Grad Trackers (see Appendix A-L) all references to actual student names were removed. This kept compliance with privacy acts in order to not allow any personally identifiable information to be compromised. This also enabled sanitation of the new spreadsheets while remaining objective to the new data set represented. Actual Squadron designations were removed as well, but labeled as either AD or AFRC for further data examination on possible

differences in PCO course training On-Time graduation rates or length of days in Phase IB.

#### On-Time Graduation Rate Analysis

The tables below help to synthesize the On-Time graduation rates for each of the PCO and ACIQ courses at both McGuire and Travis FTUs for the FY10-12 time period. Table 4 examines the amount of PCOs and ACIQs trained at McGuire FTU with respect to their graduation rate. Table 5 does the same for Travis FTU as well.

**Table 4 – McGuire FY10-12 On-Time Graduation Rate Summary**

<b>Course</b>	<b>On-Time</b>	<b>Late</b>	<b>Total</b>	<b>On-Time Grad Rate (%)</b>
<b>FY10 PCO</b>	<b>20</b>	<b>9</b>	<b>29</b>	<b>68.97%</b>
<b>FY10 ACIQ</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>50.00%</b>
<b>FY11 PCO</b>	<b>17</b>	<b>6</b>	<b>23</b>	<b>73.91%</b>
<b>FY11 ACIQ</b>	<b>4</b>	<b>5</b>	<b>9</b>	<b>44.44%</b>
<b>FY12 PCO</b>	<b>21</b>	<b>5</b>	<b>26</b>	<b>80.77%</b>
<b>FY12 ACIQ</b>	<b>2</b>	<b>6</b>	<b>8</b>	<b>25.00%</b>
<b>AVERAGE PCO</b>	<b>58</b>	<b>20</b>	<b>78</b>	<b>74.36%</b>
<b>AVERAGE ACIQ</b>	<b>9</b>	<b>14</b>	<b>23</b>	<b>39.13%</b>

It can be seen that the On-Time graduation rates are not positive with the ACIQ rate never better than 50% for any FY, actually decreasing each following FY. This results in an ACIQ 39.13% on-time graduation rate for the duration of the study. The highest PCO on-time graduation rate occurred in FY12 with 80.77%, but multiple FY10 late students caused the overall PCO on-time grad rate to only be 74.36%. McGuire trained 78 PCOs and 23 ACIQs for a grand total of 101 students in this sample.

**Table 5 – Travis FY10-12 On-Time Graduation Rate Summary**

<b>Course</b>	<b>On-time</b>	<b>Late</b>	<b>Total</b>	<b>On-Time Grad Rate (%)</b>
<b>FY10 PCO</b>	<b>10</b>	<b>14</b>	<b>24</b>	<b>41.67%</b>
<b>FY10 ACIQ</b>	<b>2</b>	<b>9</b>	<b>11</b>	<b>18.18%</b>
<b>FY11 PCO</b>	<b>10</b>	<b>6</b>	<b>16</b>	<b>62.50%</b>
<b>FY11 ACIQ</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>50.00%</b>
<b>FY12 PCO</b>	<b>20</b>	<b>5</b>	<b>25</b>	<b>80.00%</b>
<b>FY12 ACIQ</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>50.00%</b>
<b>AVERAGE PCO</b>	<b>40</b>	<b>25</b>	<b>65</b>	<b>61.54%</b>
<b>AVERAGE ACIQ</b>	<b>10</b>	<b>17</b>	<b>27</b>	<b>37.04%</b>

ACIQ on-time graduation rates are very low with an 18.18% rate in FY10, but improving marginally to 50% for both FY11 and FY12. Overall, the Travis ACIQ on-time graduation rate is only at 37.04% for the three year period. The PCO on-time graduation rate starts at only 41.67% in FY10 and slowly increases to 80% by FY12. However, the PCO on-time graduation rate is still fairly low at 61.54% for the study period. Travis trained 65 PCOs and 27 ACIQs for a grand total of 92 AC students for FY10-FY12. Next, we will compare McGuire and Travis total numbers in Table 6 to determine any similar trends.

**Table 6 – Combined FY10-12 On-Time Graduation Rate Summary**

<b>Course</b>	<b>On-Time</b>	<b>Late</b>	<b>Total</b>	<b>On-Time Grad Rate (%)</b>
<b>MCGUIRE AVG PCO</b>	<b>58</b>	<b>20</b>	<b>78</b>	<b>74.36%</b>
<b>TRAVIS AVG PCO</b>	<b>40</b>	<b>25</b>	<b>65</b>	<b>61.54%</b>
<b>MCGUIRE AVG ACIQ</b>	<b>9</b>	<b>14</b>	<b>23</b>	<b>39.13%</b>
<b>TRAVIS AVG ACIQ</b>	<b>10</b>	<b>17</b>	<b>27</b>	<b>37.04%</b>

Both Travis and McGuire FTUs do not have stellar graduation rates for either AC course. McGuire is slightly better with a 74.36% on-time graduation rate for PCOs where Travis

remained at 61.54%. Neither of these values are first-rate and clearly express the problems that these FTUs have in producing these pilots in a timely fashion to senior leaders. McGuire trains 26 PCOs a year on average which is more than the 22 Travis averages per year, but that it is due to the fact that McGuire has more courses to fill their higher number of crews based on more aircraft assigned.

Interesting is the fact that each train a similar number of ACIQs annually (8-9), but both have an extremely low on-time graduation rates hovering around 37-39% overall. This is indicative that either there are not enough resources or the recent syllabus flow does not match the current timeline for these ACIQs to get properly trained in accordance with the AFI 11-2KC-10 Volume 1 limits. In the following analysis section, the impact of these delays in relation to PCO and ACIQ average days late and average days in training for Phase IB will be examined.

### Impact of Delays

There is a tremendous negative impact to the KC-10 enterprise when these Aircraft Commander student pilots graduate excessively late from their formal training course. ACs are the “lifeblood” of the entire community required to meet tasking from both AMC and TACC from a scheduling perspective. These ACs provide the leadership capability along with the FE and BO assigned to KC-10 crews as needed for steady -state worldwide operational missions, deployment tasking and surge requirements when they unexpectedly arise. The delays in the system for PCO and ACIQ students result in ripple effects on both the active duty and reserve squadrons.

A student delay can contribute to a limiting constraint on the squadron's amount of available crews to be tasked for operational missions thereby reducing system capability. Additionally, this can cause other ACs remaining in the squadron to fill the gap and go on more TDYs to meet operational missions. It can also result in these ACs or IACs not in training to deploy more often to fulfill the continuous deployment lines in the CENTCOM Area of Responsibility (AOR). Their necessary coverage to overcome this deficiency directly results in fairly high TDY rates for the KC-10.

As previously highlighted in Chapter 2 from Table 1, the overall training time limitations for the PCO course is 90 days and 140 days for the ACIQ program. Again, these are actual calendar days and not training days as listed in the syllabi. The PCO syllabus allocates 10 training days for Phase IA, which equates to 13 calendar days after analysis of the PFT Quotas for both McGuire and Travis (ACIQ Syllabus, 2011). This results in 77 calendar days to complete Phase IB at FTU. The ACIQ syllabus had originally 52 training days in Phase IA, but they added 2 more academic days in Phase IA in the July 2011 syllabus for an increase to 54 training days (ACIQ Syllabus, 2011). These values are previously listed in Table 2 for reference.

Through analysis of the PFT Quotas, ACIQ Phase IA is scheduled for 71 calendar days which leaves 69 days remaining for Phase IB. Thus, the target goals for Phase IB are 77 calendar days to finish a PCO not late and 69 calendar days to complete an ACIQ on-time. Tables 7 and 8 highlight both the average actual days spent in Phase IB, but also the average days late, if graduated late, for the PCO and ACIQ courses. Both FTUs to some extent are having difficulties in meeting these goals for the FY10-12 time period.

**Table 7 – McGuire FY10-12 Phase IB Days in Training & Days Late**

<b>Course</b>	<b>Ph IB Days in Tng</b>		<b>Days Late</b>	
	<b>Mean</b>	<b>Std Dev</b>	<b>Mean</b>	<b>Std Dev</b>
<b>FY10 PCO</b>	<b>74.52</b>	<b>20.94</b>	<b>18.44</b>	<b>19.48</b>
<b>FY10 ACIQ</b>	<b>69.50</b>	<b>10.31</b>	<b>11.33</b>	<b>1.15</b>
<b>FY11 PCO</b>	<b>69.91</b>	<b>21.82</b>	<b>19.67</b>	<b>16.82</b>
<b>FY11 ACIQ</b>	<b>76.33</b>	<b>18.31</b>	<b>20.00</b>	<b>20.07</b>
<b>FY12 PCO</b>	<b>69.38</b>	<b>15.53</b>	<b>16.60</b>	<b>14.01</b>
<b>FY12 ACIQ</b>	<b>94.13</b>	<b>31.64</b>	<b>40.33</b>	<b>20.75</b>
<b>AVERAGE PCO</b>	<b>71.45</b>	<b>19.48</b>	<b>18.35</b>	<b>16.64</b>
<b>AVERAGE ACIQ</b>	<b>80.74</b>	<b>23.92</b>	<b>26.86</b>	<b>21.15</b>

McGuire for the most part is meeting the 77 day Phase IB target for the PCO course with an average days spent in training of 71.45 days. It appears to be fairly consistent through the three year review. When a PCO does graduate late, they are 18.35 days late on average and this appears to be fairly stable as well. Unfortunately, as seen before in previous analysis the ACIQ program is having serious issues to meet the 69 day Phase IB target goal. McGuire ACIQs averaged 80.74 training days with the worst sample being FY12 causing significant late graduations at 94.13 days in Phase IB. Additionally, when an ACIQ graduates late they average 26.86 days in delay which is finishing almost four weeks later than originally scheduled. FY12 was again a leading poor indicator with the average days late for the ACIQ course increasing to 40.33 days. The FY12 McGuire Grad Tracker indicates both high student workload and numerous cancellations as possible causes for these late graduations (McGuire FY12 Grad Tracker). This impacts the enterprise as a whole system in meeting scheduled taskings with diminished AC availability because of delays in formal training courses.

**Table 8 – Travis FY10-12 Phase IB Days in Training & Days Late**

<b>Course</b>	<b><u>Ph IB Days in Tng</u></b>		<b><u>Days Late</u></b>	
	<b>Mean</b>	<b>Std Dev</b>	<b>Mean</b>	<b>Std Dev</b>
<b>FY10 PCO</b>	<b>93.54</b>	<b>30.42</b>	<b>35.86</b>	<b>20.18</b>
<b>FY10 ACIQ</b>	<b>103.73</b>	<b>32.01</b>	<b>42.44</b>	<b>28.25</b>
<b>FY11 PCO</b>	<b>75.00</b>	<b>21.51</b>	<b>20.50</b>	<b>14.28</b>
<b>FY11 ACIQ</b>	<b>70.10</b>	<b>15.26</b>	<b>17.20</b>	<b>13.61</b>
<b>FY12 PCO</b>	<b>69.60</b>	<b>18.62</b>	<b>17.80</b>	<b>13.81</b>
<b>FY12 ACIQ</b>	<b>76.00</b>	<b>10.73</b>	<b>15.33</b>	<b>3.21</b>
<b>AVERAGE PCO</b>	<b>79.77</b>	<b>26.23</b>	<b>28.56</b>	<b>19.14</b>
<b>AVERAGE ACIQ</b>	<b>85.11</b>	<b>27.37</b>	<b>30.24</b>	<b>25.01</b>

Travis data is even more atrocious than McGuire, though it seems that their average Phase IB days in training and days late is improving from FY10 to FY12. It seems that FY10 was their worse training year instead of FY12 for McGuire. They are slightly above the 77 day Phase IB target for the PCO course with an average days spent in training of 79.77 days. FY10 was the worse for PCOs with 93.54 days in Phase IB training. A Travis PCO that goes late, graduates 28.56 days late on average and this appears to be very high in FY12 at 35.86 days late, but less than half of that for FY11-12. Likewise, as seen before in the McGuire ACIQ program, Travis is unable to meet the 69 day Phase IB target goal with any consistency. Travis ACIQs averaged 85.11 days in training with the worst occurrence in FY10 with an extreme amount of days in Phase IB at 103.73. Moreover, Travis ACIQs graduate who graduate late, average 30.24 days which is a month past due. FY10 was highlighted by an unsatisfactory rate of 42.44 days late for ACIQs when in delay. The FY10 Travis Grad Tracker suggests lots of

maintenance cancellations (2.31 per student) affecting final timeliness (Travis FY10 Grad Tracker).

An important data point to note is that both McGuire and Travis cannot meet the ACIQ timeline of 140 days overall with 69 days as the target in Phase IB. McGuire ACIQs average 80.74 days in Phase IB while Travis averages 85.11. This results in the ACIQs taking anywhere from 12 to 16 days longer than dictated per the AFI 11-2KC-10 Volume 1 (AFI 11-2KC-10V1, 2012). Coupled with a low on-time graduation rate of nearly 38% on average for the ACIQ courses, serious consideration should be to reviewing the syllabus flow and resources dedicated to this specific formal course. A comparison of the sorties scheduled and actual hours flown versus syllabus recommended sorties and hours allotted for the PCO and ACIQ courses will complete the available quantitative analysis.

#### Syllabus Comparison of Sorties Scheduled and Actual Hours Flown

Since the KC-10 FTU formal course syllabi were published in February of 2010, they have provided a basis for guidance and accountability with the training program that was not established beforehand. It must be stressed that the breakout of day and night missions are only recommendations in the syllabus and can be altered because of student proficiency and remaining events available, i.e. tanker or receiver support, prior to final evaluation (ACIQ & PCO Syllabus, 2011). The PCO and ACIQ sortie recommendations and planned hours did not change between their initial release and the July 2011 revision. A PCO is allocated 6 sorties overall with a planned duration of 36 flight hours and this includes an evaluation sortie. An ACIQ is allocated 9 sorties overall with a planned total

of 50.2 hours to include an evaluation sortie as well. Table 9 provides a breakdown of the day, night and evaluation mission requirements plus planned overall flight hours.

**Table 9 – PCO & ACIQ Planned Sortie Breakout & Flight Hours**  
(ACIQ & PCO Syllabus, 2011)

Course	Day Msns	Night Msns	Eval Msn	Total Msns	Flt Hrs
KC-10 PCO	3	2	1	6	36.0
KC-10 ACIQ	5	3	1	9	50.2

This breakout data from the syllabi can provide a platform to compare the scheduled missions or sorties and actual hours flown in the FY10-12 Grad Trackers for both McGuire and Travis FTUs. This analysis will determine if there are any noticeable trends as part of this research for either FTU in assessment against syllabus recommendations. Tables 10 and 11 reflect the data summarized for each FY at the appropriate FTU and an aggregate review for the entire three year window.

**Table 10 – McGuire FY10-12 Scheduled Sorties & Actual Flight Hours**

Course	<u>Scheduled Sorties</u>		<u>Actual Flt Hrs</u>	
	Mean	Std Dev	Mean	Std Dev
FY10 PCO	10.97	3.94	47.2	14.9
FY10 ACIQ	12.17	2.64	57.2	16.1
FY11 PCO	12.17	4.86	47.2	12.6
FY11 ACIQ	15.22	5.97	63.4	20.6
FY12 PCO	8.35	2.56	47.7	13.4
FY12 ACIQ	9.00	1.41	54.5	11.4
AVERAGE PCO	10.45	4.12	47.4	13.6
AVERAGE ACIQ	12.26	4.76	58.7	16.5

The McGuire PCO students for FY10-12 are taking 10.45 scheduled sorties and 47.4 actual flight hours to complete their AC upgrade course. The data does reveal that the average actual flight hours needed to be flown to finish PCO is right around 47 overall. Using the recommended PCO baseline of 6 sorties and 36.0 flight hours, the PCOs from this sample period took 74.2% (4.45) more scheduled sorties and 31.2% (11.4) longer actual flight hours than planned. There are too many factors to single out distinctly what may cause extra sorties to be flown to gain the required training whether it be outright internal maintenance delays, external cancellations or inefficient scheduling. The range for the PCO courses varied from a low of 5 scheduled sorties with 18.8 flight hours to high of 26 sorties and 85 flight hours.

In the same way, the McGuire ACIQs are exceeding the recommended sorties and flight hours as well. These ACIQs are taking 12.26 scheduled sorties and 58.7 actual flight hours to complete their qualification training. The average actual flight hours are consistently in the upper 50s. The ACIQ syllabus has a baseline of 9 sorties and 50.2 flight hours as reference. The FY10-12 ACIQs took 36.2% (3.26) more scheduled sorties and only 16.9% (8.5) longer actual flight hours than published. These ACIQs may not be exceeding the syllabus as much as the PCOs, but still it takes both more sorties and flight hours than published. It appears that the planned flight hours are close to actual flown, but more sorties should be added to the syllabus to make it more realistic since its release in February of 2010 with this feedback. The range for the McGuire ACIQ courses occurred at a low of 7 scheduled sorties with 32.6 flight hours to high of 29 sorties and 109.4 flight hours. The max value student had both multiple receiver air

refueling event and maintenance cancellations causing the delay. Ensuing FY10-12 Travis PCO and ACIQ data will be analyzed in Table 11.

**Table 11 – Travis FY10-12 Scheduled Sorties & Actual Flight Hours**

<b>Course</b>	<b><u>Scheduled Sorties</u></b>		<b><u>Actual Flt Hrs</u></b>	
	<b>Mean</b>	<b>Std Dev</b>	<b>Mean</b>	<b>Std Dev</b>
<b>FY10 PCO</b>	<b>12.08</b>	<b>4.44</b>	<b>47.0</b>	<b>21.1</b>
<b>FY10 ACIQ</b>	<b>13.73</b>	<b>4.65</b>	<b>51.7</b>	<b>17.3</b>
<b>FY11 PCO</b>	<b>9.25</b>	<b>2.84</b>	<b>35.9</b>	<b>10.6</b>
<b>FY11 ACIQ</b>	<b>11.80</b>	<b>2.78</b>	<b>44.5</b>	<b>10.3</b>
<b>FY12 PCO</b>	<b>11.72</b>	<b>3.53</b>	<b>51.1</b>	<b>15.6</b>
<b>FY12 ACIQ</b>	<b>14.00</b>	<b>3.16</b>	<b>57.5</b>	<b>7.1</b>
<b>AVERAGE PCO</b>	<b>11.25</b>	<b>3.87</b>	<b>45.8</b>	<b>17.7</b>
<b>AVERAGE ACIQ</b>	<b>13.07</b>	<b>3.73</b>	<b>50.3</b>	<b>13.7</b>

Likewise, the F10-12 Travis PCO students need additional sorties and hours, though slightly fewer hours than McGuire, to complete the program in relation to the syllabus. The PCOs average 11.25 scheduled sorties and 45.8 actual flight hours. There is no discernible pattern, but FY11 was the best at 9.25 sorties and 35.9 flight hours. This could be caused by the fact there was less demand on the system as they trained only 16 PCOs that year, due to local cancellation of 10 slots, whereas they trained 24 in FY10 and 25 in FY11. Again utilizing the recommended PCO baseline of 6 sorties and 36.0 flight hours, the Travis PCOs on average took almost double the amount of scheduled sorties by a rate of 87.5% (5.25) . They needed 15.6% (9.8) additional flight hours than planned to finish. The range for the Travis PCO courses varied from a low of 5 scheduled sorties with 17.8 flight hours to a high of 22 sorties and 107.9 flight hours. The PCO high

values were a result of an extreme amount of receiver air refueling and maintenance cancellations hurting that student continuity and progression.

Correspondingly, on average the Travis ACIQs are exceeding the recommended sorties, but not so much the flight hours. These ACIQs are taking 13.07 scheduled sorties and 50.3 actual flight hours to finish their formal course. There is no observable pattern again as they trained similar amounts each year, but the FY11 ACIQ data (10 students) was the best at 11.8 sorties and 44.5 flight hours. The ACIQ syllabus has a baseline of 9 sorties and 50.2 flight hours as reference. These Travis ACIQs necessitated 45.2% (4.07) more scheduled sorties, but were spot-on near the flight hour requirement (50.2 vs. 50.3 hrs) as published. Travis FTU could be scheduling the ACIQs differently than McGuire as it takes them almost 1 whole scheduled sortie longer on average to complete, but 8.4 hours quicker. The 9 ACIQ sorties published in the syllabus may not be the exact right amount to acquire all the intensive training these students need to be proficient upon evaluation. The range for the Travis ACIQ courses happened with a low of 6 scheduled sorties and 23.4 flight hours for separate students. Each of these ACIQs were highly experienced ACs coming from the C-5 MWS which has a receiver AR requirement. The peak was 20 sorties and 76.6 flight hours. The max value student, who was a T-1 First Assignment Instructor Pilot (FAIP), had both multiple maintenance cancellations and progression issues with receiver air refueling causing the delay.

In summary, both McGuire and Travis FTUs for the most part are exceeding the recommended amount of sorties and planned flight hours for their PCO and ACIQ formal courses. After examination, an attention-grabbing observation from the AFRC student pilot data set was noted, particularly on PCOs, regarding their training duration versus the

syllabus and the FY10-12 overall average scheduled sorties and actual flight hours. This data is presented in Table 12.

**Table 12 – Combined AFRC FY10-12 Scheduled Sorties & Actual Flight Hours**

	<b>AFRC COMBINED SUMMARY</b>		
	<b>Total Students</b>	<b>Mean Sorties</b>	<b>Mean Flt Hrs</b>
<b>MCGUIRE FY10-12 PCO</b>	<b>10</b>	<b>7.20</b>	<b>33.8</b>
<b>TRAVIS FY10-12 PCO</b>	<b>7</b>	<b>8.43</b>	<b>30.2</b>
<b>MCGUIRE FY10-12 ACIQ</b>	<b>2</b>	<b>10.50</b>	<b>57.2</b>
<b>TRAVIS FY10-12 ACIQ</b>	<b>3</b>	<b>11.33</b>	<b>40.4</b>

As discussed earlier, the PCO syllabus standard is 6 sorties and 36.0 flight hours to complete their training requirements. The McGuire PCOs average 7.20 scheduled sorties and 33.8 actual flight hours. The Travis PCOs average 8.43 sorties and 30.2 flight hours. The sortie counts for each are slightly higher by 20% and 40% than the syllabus dictates and this could be because of possible cancellations or lost activity events. Both McGuire and Travis PCOs though are under the 36.0 planned flight hours. Furthermore, though this is a small sample size of only 17 PCOs, when in comparison to the FY10-12 PCO averages they are considerably better rates. In fact, the FY10-12 AFRC PCOs that flowed through the program required 31% less scheduled sorties and nearly 30% less flight hours than their peers.

A definitive explanation can't be solely provided to ascertain why these AFRC students flowed through more efficiently and quickly on average. Nonetheless, it could be surmised that these PCOs who were seasoned as co-pilots in their reserve squadrons for 18 months to 2 years receive a substantial amount of higher quality training than their

active duty counterparts. Without a doubt, the experience level in the AFRC KC-10 community is much greater than that of the operational AD squadrons. This exposure to very sharp reservist IPs coupled with potentially better training opportunities could be a primary contributing factor to their lower amounts of scheduled sorties and associated flight hours (Wolf, 2013). This enables them to breeze through the AC upgrade program from a flying framework on a more consistent basis. The AFRC ACIQ sample size is too small to deduce any meaningful observations.

The bulk of the quantitative analysis has been performed to help reveal the On-Time graduation rates, impact of delays and a syllabus comparison from the aspect of sorties and flight hours. The following analysis section will be qualitative in nature to help triangulate and possibly identify what are the sources of these extensive PCO and ACIQ delays for the McGuire and Travis FTUs.

### Sources of Delay

It is problematic to clearly isolate one specific critical cog quantitatively that could cause these widespread delays for both the McGuire and Travis FTU PCO and ACIQ courses. As part of this comprehensive case study it was deemed that qualitative sources would be used to assist in the recognition of these delays from multiple sources in a triangulation effort.

Delays in the system could come from a multitude of sources. The possible delays for each student could include the lack of availability of resources like internal maintenance cancellations such that the KC-10 does not depart on its FTU training sortie or is delayed so long that they miss their scheduled events like a tanker AR with a

defined rendezvous time. They could also lose activities when external suppliers of training events cancel because of their own compounding factors like a KC-135 not able to meet a KC-10 for night receiver AR because of their faulty maintenance. Another factor that is hard to quantify, but can contribute significantly is when the student workload exceeds the capability of the local FTUs despite their best efforts to efficiently train students. Weather cancellations like fog for Travis and snow for McGuire can wreak havoc on the student flow during the winter. These delays can be categorized via a maintenance/tanker, weather or receiver AR cancellation effect.

Some delays don't fit any specific category. There are other or random delays that can't be predicted like emergency leave or an extended period of Duty Not Including Flying (DNIF) where the student is not available to train on FTU sorties. Delays can come from other sources like not having enough manpower, i.e. experienced FTU instructors, to meet the sortie demand for the current workload. Finally, some delays occur when the student has progression issues during training and requires additional resources dedicated to them or a Progress Review Board (PRB) to determine the best course of action to finish the program in an efficient manner. The cumulative effect is the combination of them together can severely impact FTU timeliness, but a methodical review of the local OG TRP products and conducting in-depth interviews of the right Wing Training and FTU personnel can help shed some light on the causes in a qualitative manner. The main causes of delay discerned from the TRP documents and interviews can be synthesized as lack of KC-135 receiver AR availability, unbalanced PFT student flow and FTU manpower capacity to match sortie demands.

After analyzing the both the McGuire TRP slides and Travis TRP minutes and slides from 1 October 2009 to 31 Dec 2012 they help to paint the picture of these possible causes of delay. In FY10 and FY11, McGuire had a high incidence of bad weather during the late fall and winter coupled with poor maintenance sortie generation rates. This resulted in McGuire having an On-Time Graduation rate of only 43% for all of their pilot students from 1 October 2010 to 30 March 2011 (McGuire FY10-11 TRP, 2013). Travis also had poor weather from fog during the winters of 2010 and 2011 resulting in multiple weather cancellations, but not to the same extent as McGuire's ice and snow effects (Travis FY10-11 TRP, 2013).

#### KC-135 Receiver Air Refueling Requirements

Captain Todd Jolly, Deputy Chief of the McGuire FTU, in a personal interview highlighted the fact the KC-135 receiver AR activity is the number one training event that can delay PCOs or ACIQ during their formal courses (Jolly, 2013). He stressed that it is usually the hardest event for the AC upgrades to master, particularly Night KC-135 can be extremely difficult at times for them to gain satisfactory proficiency in an efficient manner (Jolly, 2013). He even mentioned that it can be hard for IACs to regain confidence since they don't see KC-135s very often in the operational squadrons on local training sorties (Jolly, 2013). McGuire's KC-135 receiver AR lost events increased to almost 30-40% for Day KC-135 activities and almost 50% of the Night KC-135 scheduled for some periods (McGuire FY11-12 TRP, 2013).

Travis FTU consistently highlighted KC-135 receiver availability and maintenance cancellations as some of their primary delay causes in their TRP slides

(Travis FY10-12 TRP, 2013). Travis FTU also is impacted by a severe lack of available KC-135 units nearby them for scheduling purposes to meet their mandated syllabus receiver AR requirements. The 940th Air Force Reserve Air Refueling Wing nearby at Beale AFB, California stopped flying KC-135s in 2008 and this put a huge dent in Travis' wing scheduling of FTU resources. Current Operations has routinely sought week-long tanker business efforts, but have not had much success (Travis FY10-11 TRP, 2013). Essentially there are only three units nearby that are common partners for KC-135 receiver work: the 92d ARW (AD) 141st ARW - Fairchild AFB, Washington; the 151st ARW (ANG)-Salt Lake City, Utah and the 452d AMW (AFRC) at March AFB, CA.

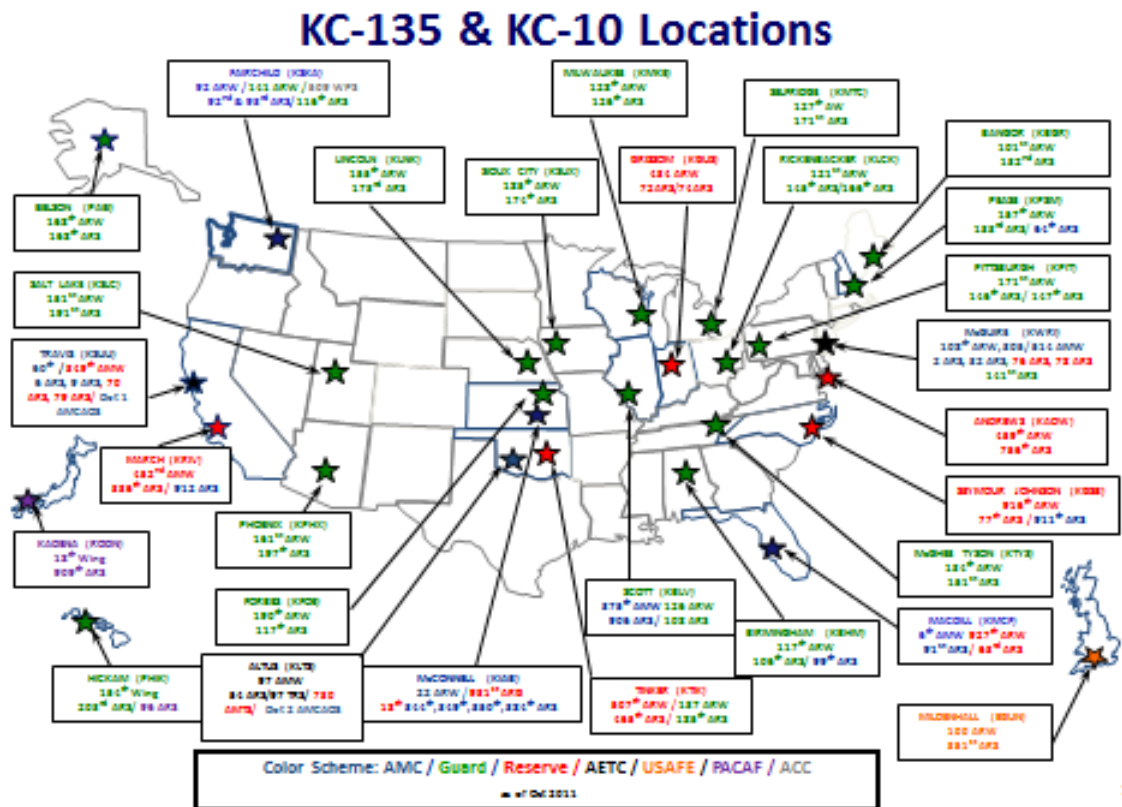


Figure 1 – KC-135 & KC-10 Tanker Locations (AMC/A3TK, 2011)

McGuire on the other hand has 6-8 KC-135 units that are all within a reasonable flying range and are willing partners to provide the vital AR training. Figure 1 above displays the location breakdown of the Tanker units across the United States and world for reference purposes.

The Chief Scheduler for the Travis FTU, Capt Nate St. Louis, also stressed in a telephone interview the continuous struggle to meet the demand for the KC-135 receiver AR training of the PCO, ACIQ, IAC and PRQ formal courses (St. Louis, 2013). He said operating under a reliable stream of Day and Night KC-135 activity was their #1 challenge at Travis FTU to get students through the training pipeline. Major Anthony Wolf, Deputy Chief of Travis FTU, expressed near identical sentiments regarding their desperate need for dedicated weekly, if not daily, KC-135 support for the West Coast FTU (Wolf, 2013). Receiver AR proficiency is such a huge part of the AC qualification process that reliance on outside tankers, like the KC-135, are all too often the critical node in the flying requirements for the student flow. When the AC student pilots suffer from a lack of KC-135 events, especially Night KC-135, then their training can come to an abrupt halt because of syllabi restrictions. They can get other events accomplished like transition and formation training in its place, but they can't proceed from Day to Night KC-135 events or to their evaluation without completing this critical path. The OG can grant a waiver for this requirement, but they must complete it before being certified MR (PCO Syllabus, 2011).

There has been recent discussion because of the severe lack of KC-135 availability coupled with sequestration impacts influencing more late graduations that maybe this KC-135 requirement should be removed from the syllabus or the burden

placed on the squadron training sections as part of MCT. The C-17 FTU at Altus and C-5 schoolhouse at Lackland don't train against the KC-10 during qualification, but only see the KC-135 as part of their AC qualification and are certified worldwide MR. The main difference is that in receiver AR training against the KC-135, the students are learning to the higher standard with a tighter AR boom envelope and less tolerance for mistakes or errors. In my 10 years of flying the KC-10, I have never heard of the aircraft's autopilot becoming disengaged during tanker AR because of an abrupt maneuver of a poor receiver pilot. Additionally, there have been multiple aircraft safety incidents in the past 6 years involving KC-10 receiver AR with KC-135s that highlight the need for this requirement to remain in the syllabi.

Another challenge to overcome is that the KC-10 community routinely does not perform receiver AR on straight tracks especially in deployed environments with tight airspace. They usually consolidate extra fuel from other tankers in narrow racetrack patterns called anchor orbits at night and in the weather at times. This high stress environment dictates they train in the most challenging conditions against the harder platform or otherwise suffer unnecessary consequences.

In terms of where should this KC-135 receiver AR training remain either at the FTU as part of Phase I syllabi or in the squadrons as part of MCT, this has been recently debated because of a shortage of available KC-135s creating large ACIQ and PCO bottlenecks in the FTU pipelines. After talking with both FTUs, they tend to think that it should remain at the FTUs where the enterprise's best and most experienced instructors can standardize the skills needed to proficiently perform the maneuver with no external pressures to "sign" them off to meet urgent operational taskings (Jolly & Wolf, 2013).

Transitioning this requirement to the AD squadron training sections or seeking regular OG/CC waivers to delay event completion is not the preferred choice of most KC-10 training experts (St. Louis & Jolly, 2013).

#### Balanced PFT Smooth Flow Initiative

There are also multiple mentions of high student workload as delay factors they can't seem to overcome (McGuire FY11-12 TRP, 2013). Excessive student numbers and their subsequent delay seems to be more of an apparent issue for Travis during the summer of 2010 (FY10) through the fall of 2011 (FY11) (Travis TRP FY10-11, 2013). McGuire likewise has a high student load over the winter of 2010 (FY11) and then from April through December 2012 (FY12) (McGuire FY11-12 TRP, 2013). During most of this three year period as well each location for a period of months would have one simulator down for upgrades. This caused the KC-10 system to only have 3 WSTs available instead of 4 and only compounded an already lagging PFT scheduling problem to be burdened with even more restrictions that would overload each FTU's capacity.

Review of the Travis FTU FY09 to FY12 6-pack Tracker provides the capability to see a weekly amount of students in training during this three year period. The average Travis FTU student load is 17 students for FY10-12 (Travis FTU 6-pack, 2013). According to their latest TRP slides, their optimum student workload is around 16 pilots if they have AFRC FTU manpower augmentation (Travis FY12 TRP, 2013). In FY10 they averaged 18 pilots, but fluctuated from an extreme high of 30 and a low of 11. In FY11 Travis FTU had 18 pilots in training on average, but had variations from a max of 20 to a low of only 3 pilots (Travis FTU 6-pack, 2013). FY12 was more manageable for

them as they averaged 13 pilots with it varying between 3 as a minimum and 21 as a maximum. McGuire FTU did not have a similar student flow counter available for comparison. No production line facility or FTU can operate efficiently in terms of manpower and sorties to meet such large variances.

Though the high student load is only exacerbated by excessive late graduations back piling on the FTU system, the KC-10 PFT overall FY flow seems to be a bigger factor. This could be caused by unbalanced surges in the KC-10 PFT from the previous simulator contract. The contractor at the time would schedule the classes for Phase IA i.e. the simulator portion to begin and end in the same fiscal year because of crossover funding concerns (Longino, 2012). For example, usually the last FY PIQ and ACIQ classes would start in July to finish by October. This results in a lull in student load for October through December as new initial qualification classes stop at the end of the fiscal year. They then start up again in October and the FTUs are swamped with students come the end of December and beginning of January (Longino, 2012). This leads to the FTUs trying to squeeze excess capacity out of Phase IB for the remaining 9 months of the fiscal year, but they usually can't make up for it, particularly when they start to fall behind with an overwhelming student workload from late graduates and uneven PFT.

The WSTs going up and down at each location for months at a time only compressed the situation to make it even worse for FY10-12. There is no suitable solution to the simulator upgrade problem besides upgrading a PTT with full motion, but a new facility would have to be built to house the new WST. This is the least costly option and though it would be cheaper than buying a brand new simulator, it would still cost millions of dollars at each location. The WSTs currently operate 16 hours from

0800-2400 every day with maintenance and minor upgrades allotted for the other 8 hours. Another option is to run the remaining simulators during the 0400-0800 period, but preventive maintenance would be limited by this practice.

Captain Wendy Emminger, Chief of McGuire Wing Training, has also found that the initial ACIQ and PIQ slots are linked with the Flight Engineer Initial Qualification (FIQ) courses. There are issues for them crossing the fiscal year as they have extra pretraining they must accomplish before the pilots show at the start of class (Emminger, 2013). Travis has decided to work with the contractor and attempt to implement a “Smooth Flow” PFT process beginning with the FY14 formal training Phase IA classes. By bridging the initial qualification courses across the different fiscal years, the intent is to keep a more balanced student flow year-round (Longino, 2012).

This process would boost overall system efficiency while reducing the typical January to March surge that coincides with increased weather cancellations. McGuire has not been able to execute a smooth flow PFT yet for the upcoming fiscal years and the simulator contract is up for rebidding negotiations starting in FY15 (Emminger, 2013). The cost factors might go up because of these changes to the contract, but providing on-time graduations are more important to operational readiness (Longino, 2012). Overall, a smooth flow KC-10 PFT that is both balanced and manageable must become a top priority for the simulator contractor and AMC/A3T.

#### Proper AFRC Manpower Allocation

Another consistent theme for the FY10-12 Travis PFT slides is the request for AFRC manpower assistance on a long-term basis. As discussed previously in the

Literature Review, AFRC and AMC combined in the mid-2000s to form an integrated KC-10 FTU using GWOT funds to pay for the positions. This business practice existed until the GWOT funding began to dry up at the end of FY10. AMC decided to not fund the positions from the AD Air Force with Manpower Personnel Appropriations (MPA) funding. AFRC also decided to not fund the position with applicable Reserve Personnel Appropriation (RPA) funds to train their students. Thus on 30 Sep 2010, McGuire FTU lost their AFRC FTU instructors and Travis lost their FTU reservist augmentation on 30 November 2010. There was again light debate to split up the AD and AFRC into separate schoolhouses as Travis was experiencing the student surge to a workload of 29 pilots during that winter timeframe.

The AFRC PFT quota slots represent approximately 20% of the overall student load on average for all crew positions (Staley & Koran, 2012). Each FTU lost a large portion of their capability while they were being swamped with a high demand student signal. McGuire lost 4 reservist FTU IPs, 2 instructor flight engineers (IF) and 1 instructor boom operator (IB) which was 30% of their crew force at the time. Travis lost 2 reservist IPs, 1 IF and 1 IB which was 17% of their FTU crew force. Each FTU did not have extra capacity to account for student surges and some FTU IFs were flying so much that there were no instructors available for important ground training of new engineers (Travis FY11 TRP, 2013).

Eventually after operating over a year without the AFRC KC-10 FTU augmentation at substandard graduation rates, AMC was convinced to bring back via quarterly MPA on 1 January 2012: 1 AFRC crew for Travis FTU and 2 AFRC crews for McGuire FTU. This had a positive effect both on the instructors by relieving certain

demands to focus solely on training and students receiving higher quality training due in part to the AFRC higher levels of experience. TRP slides reflect it as a top priority for McGuire FTU to continue the AFRC FTU assistance (McGuire FY12 TRP).

Captain Jolly stated that the number one McGuire FTU priority is to maintain AFRC FTU manning at all costs because of its exponential dual benefits for both the fellow instructors and more well-rounded students (Jolly, 2013). The concern both for FY12-13 and the future is that there is no long-term funding source allocated for the AFRC FTU instructors. In light of budgetary cutbacks, AMC could decide very easily to cut this important funding line. The MPA funding exists on a quarterly basis and has to be renewed for the following 90 days (Wolf, 2013). In conversation with both Major Wolf and Captain Jolly, they each believe that long-term billets funded through more permanent fiscal dollars should be exhaustively researched. Otherwise, this integrated KC-10 team that has a great working relationship to the benefit of both AD and AFRC interests will falter. Consequently, the KC-10 community and their always high training standards will erode thereby weakening the system at its fundamental core.

### Summary of Findings

This case study analysis first began with an exhaustive data validation to ensure the quantitative information was both accurate and precise for assessment. On-Time graduation rates for both McGuire and Travis FTUs for each of the PCO and ACIQ student pilots for FY10-12 was examined. Neither schoolhouse had spectacular on-time graduation rates collectively, but McGuire graduated PCOs slightly better than Travis (74% vs. 61% on-time). Both had subpar on-time graduation rates below 40% for their

ACIQ courses. The potential impact of delays in AC upgrade were evaluated in respect to the total amount of days spent in Phase IB training and average days late. McGuire FTU was barely meeting the Phase IB target goal of 77 days spent in training for PCO upgrades with an average of 71.45 days, but Travis was barely exceeding it with an average time of 79.77 days. A similar pattern developed as neither FTU was able to meet the ACIQ Phase IB target goal of 69 days spent in training with each over 80 to 85 days on average. Average days late for each FTU was alarming for both PCO and ACIQ courses.

Third, the scheduled FTU sorties and actual hours flown were compared to the recently published recommendations. Both McGuire and Travis PCOs and ACIQs were exceeding the sorties scheduled versus recommended by a significant amount. Actual hours flown were also far greater for each course except for the Travis ACIQs who were almost spot-on the planning guidelines at 50.3 flight hours.

Finally, the sources of delays were interpreted from qualitative sources such as the PFT trackers, TRP slides and minutes, interviews and other FTU documentation. These multiple information tools formed the basis to triangulate on three possible main areas of focus to mitigate delays. The KC-135 receiver AR requirement is the driving factor and critical path node that can adversely impact on-time graduation if not obtained as necessary. Justification for retaining this activity as part of the PCO and ACIQ syllabi was examined. An unbalanced PFT student workload resulted in large swings in student capacity over the three year period. A resource constraint such as the simulators going down for upgrade at each location only made the situation that much worse. A smooth flow initiative to crossover initial qualification courses across the fiscal year was posed as

a solid solution. AFRC FTU manpower benefits and lost effectiveness when they are removed from the equation was presented to seek a predictable and constant funding source.

## **V. Conclusions and Recommendations**

### Chapter Overview

This chapter will deductively reveal conclusions from the previous analysis of quantitative and qualitative data in Chapter 4 and link this with the overall significance of this specific KC-10 FTU exploratory case study. Conclusions are revealed by answering the initial research questions from Chapter 2. The significance of the research focuses on this case study to be used as a body of evidence to enable the local OG Commanders to seek definitive assistance from AMC/A3 in improving KC-10 FTU operations. Clearly defined recommendations for action based on the preceding examination will be discussed along with possible recommendations for future research.

### Conclusions of Research

The goal of this case study was to take a comprehensive and all-encompassing look at the McGuire and Travis KC-10 FTUs to peel back the layers restricting an accurate assessment of the pilot production challenges they face on a constant basis. In doing so, the evidence will attempt to answer the initial investigative research questions. The first research question revolved around determining how many and how extensive were the delays for the ACIQ and PCO programs. On-Time graduation rate for both AC formal courses and each fiscal year is clearly answered for McGuire FTU in Table 4, Travis FTU in Table 5 and a comparative summary of them both in Table 6. Further analysis in Table 13 gives a complete summary of each FTU over the three year period for the cumulative On-Time graduation rate as a baseline.

**Table 13 – Cumulative FY10-12 Pilots Trained &  
On-Time Graduation Rate Summary**

<b>FTU</b>	<b>Total Pilots Trained</b>	<b>On-Time Grad Rate (%)</b>
<b>MCGUIRE FY10</b>	<b>93</b>	<b>74%</b>
<b>TRAVIS FY10</b>	<b>83</b>	<b>41%</b>
<b>MCGUIRE FY11</b>	<b>97</b>	<b>71%</b>
<b>TRAVIS FY11</b>	<b>95</b>	<b>57%</b>
<b>MCGUIRE FY12</b>	<b>95</b>	<b>78%</b>
<b>TRAVIS FY12</b>	<b>88</b>	<b>80%</b>
<b>MCGUIRE FY10-12</b>	<b>285</b>	<b>74%</b>
<b>TRAVIS FY10-12</b>	<b>266</b>	<b>59%</b>

McGuire FTU has remained fairly steady at an overall pilot on-time graduation rate of 74% for this timeframe and averaging 95 pilots trained per year. Travis FTU on the other hand started out very poorly with only a 41% on-time graduation rate for pilots in FY10, but they steadily improved to 57% in FY11 and 80% in FY12. Their overall pilot on-time graduation rate is still at only 59% for FY10-12 time period and they average approximately 89 pilots trained per year. McGuire FTU is performing better than Travis in a cumulative comparison.

These numbers are just a mere reflection of what the previous numbers on PCO and ACIQ on-time graduation rates distinctly revealed. McGuire is at a 74% on-time rate for PCOs and Travis was lower at 61% for FY10-12. Both FTUs were not able to finish ACIQs on-time in any reasonable fashion with both of their on-time graduation rates around 37-39% respectively for the case study. This would later prove to be a common trend of hardships in producing ACIQs from either coast in a timely manner.

In terms of how extensive were the delays, Table 7 (McGuire) and Table 8 (Travis) answer this question from the analysis of the Phase IB average days spent in training and average days graduated late. The PCO Phase IB target goal is 77 days in training to finish on-time. McGuire is finishing PCOs on average over 1 week faster (71.5 vs. 79.8 days) than Travis for FY10-12. The late McGuire PCOs average 18 days in delay versus 28 days for Travis. As stated before, both have a substandard track record for ACIQ timeliness. There is a target Phase IB goal of 69 days with McGuire averaging almost 81 days in Phase IB and a late graduate will be nearly 27 days in delay. Travis ACIQs average 85 days in training with over 30 days in delay when they go past the slated timeline. These ACIQ issues lend serious consideration to review the syllabus flow and resources dedicated for this specific formal course.

The second question of why were these delays occurring at each FTU was answered via comparison of sorties scheduled and actual hours flown versus the syllabus recommended sortie requirement and planned flight hours. The syllabus states that a PCO should take 6 missions and 36.0 flight hours for the program. ACIQs likewise per the syllabus require 9 sorties and 50.2 flight hours. Tables 10 and 11 summarize these results for McGuire and Travis for each fiscal year course. McGuire PCOs need over 10 sorties and 47 hours and their ACIQs need over 12 missions and 58 hours to complete the qualification. Travis PCOs required an average of over 11 missions and 45 hours for their program. Travis ACIQs require 13 sorties and 50 hours to finish qualification. Both McGuire and Travis FTUs for the most part are exceeding the recommended amount of sorties and planned flight hours for the PCO and ACIQ courses.

The third question focused on what were the root causes, discernible trends

or circumstances associate with these FTU delays. It was discovered that AFRC PCOs flow through the program much faster and more efficiently than their peers. Their exposure to a highly experienced instructor force as part of their seasoning could lead to better overall training opportunities. As a result they are better prepared to tackle the aircraft flight rigors of the AC upgrade process.

Complicated combinations of cancellations are primary factors as sources of potential delays. FY10 and FY11 McGuire FTU had lots of winter weather delays and a low maintenance sortie generation rate. Travis had a fair amount of weather delays during the winters of FY10 and FY 11 due to mainly fog. Through qualitative analysis of TRP slides and specific interviews of KC-10 FTU training experts it appears that receiver AR requirements, specifically KC-135 activities, are the critical node needed to graduate AC student pilots on time. Travis FTU also has less available nearby KC-135 tanker units to partner with for training activities than the McGuire FTU (see Figure 1).

The other main factor highlighted in TRP review and interviews was an unbalanced PFT for pilots flowing through the KC-10 formal training pipeline. There are large surges in student workload that overwhelm the FTUs and their capabilities. Simulator upgrades that led to restrictions on WST capacity and availability also amplified the pilot surges as well. The inability during this period to crosslink initial qualification course over the fiscal year resulted in the fall months having a lull period, but a wave of pilots arriving in January through April that crush on-time graduation rates at both McGuire and Travis. Travis and McGuire are each attempting to address and remedy the PFT flow problem in the near future. Finally, the potential course of action to

reduce these delays will be discussed in this chapter's Recommendations for Action section.

### Significance of Research

This case study's goal was to investigate without bias on a very deep level the KC-10 FTU training system and its core practices. As stated before, Aircraft Commanders are the "lifeblood" that keeps the KC-10 community flexible despite the high operations tempo. When these ACs are delayed in formal training, it creates a bullwhip effect that not only impacts other pilots in the unit, but could limit the operational squadron's capability to meet desired taskings as part of our National Security Strategy. Tankers are a crucial bridge in projecting global force projection at a moment's notice and KC-10s play a vital role in providing this highly demanded service.

Though there is a plethora of reports available on similar C-130 and C-17 FTU schoolhouses written in the recent past, this researcher found no comprehensive and relevant works documenting KC-10 formal training operations written past 1997. There already was some limited data available to both the McGuire and Travis OG Commanders to allow them to assess their organic FTUs. However, this case study was partially written to provide official feedback through a rigorous data analysis of students who have fallen under the guidelines of the recently published syllabi. Another positive intent was to clearly expose possible problem areas in the KC-10 Formal Training Units and seek local solutions plus coordination with AMC/A3 or the Det 1 in improving its FTU procedures through a host of available resources.

### Recommendations for Action

The conclusion of this study provide the groundwork for several important recommendations to help mitigate the delay impacts of late graduations while improving both overall system efficiency and foundation of quality training. First, AMC/A3 should assist these KC-10 FTUs to ensure they have the right resources available to train the PCOs and ACIQs in a timely manner. Receiver AR, specifically KC-135 Receiver AR, is the critical path that limits these AC upgrades from completing these courses on-time. Just as AETC provides emphasis and priority on KC-135 support for the C-17 PCO and ACIQ students at Altus, AMC should accordingly work with all AD, AFRC and ANG KC-135 units nearby these KC-10 FTUs to establish a consistent and predictable network of KC-135 activities. Otherwise, the system and the students are setup to fail with long breaks between KC-135 events leading to poor training and ultimately late graduations with their untended ripple effects.

Second, a balanced Smooth Flow PFT should be implemented for all KC-10 formal training to create a steady stream of KC-10 students year-round and not overwork the system during certain time periods. AMC/A3T and Det 1 should collaborate together with the Phase IA contractor to cross flow initial qualification students across fiscal years and thereby prevent these epic surges and subsequent lows of student FTU capacity. It cannot be overstated how crucial this Smooth Flow PFT is to creating a more streamlined KC-10 production pipeline that benefits the student with less waiting while also making more instructors available to focus on raising general knowledge in line with MAF Training 2015.

Third, a long term funding source and manpower allocation for the AFRC FTU augmentation must be actively pursued by both AFRC and AMC. Since AFRC KC-10 students make up approximately 20% of the PFT training allocations it makes sense for them to provide an equally representative amount of reservist FTU instructors to share the burden of these additional students. AFRC/A1 and AMC/A1 should work together to determine how the manpower slots should be created and then work on finding the right mix of funding dollars to sustain the positions beyond a quarterly basis. Other FTUs who operate with AFRC or ANG assistance should be investigated for similar courses of action with respect to the actual manpower billets and related funding source. An integrated KC-10 FTU with AFRC instructors provides a more robust training platform and raises the standard of quality for the entire formal training enterprise.

Finally, an in-depth review of the ACIQ syllabi should occur since it is apparent that neither FTU is able to graduate these students with any satisfactory on-time graduation rate. The overall effect of published syllabi has been an overwhelming positive trend. There are known expectations and a common operating structure for both the instructors and students to synchronize together the desired training outcomes. AMC/A3T and Det 1 should continue the iterative syllabi review and update process, but give the ACIQ program dedicated focus to see how these on-time graduation rates can be dramatically improved above their current 38% overall average.

#### Recommendations for Future Research

There are two recommendations for future research this case study has helped expose that are worthy of contemplation. The syllabi clearly state that no calendar day

assessment is available for Phase IB training due to local variables of sortie availability. The capacity of Phase IA is known and negotiated as part of the contract. However, a capacity analysis of Phase IB should be possible given the right assumptions utilized as part of a linear programming model. This capacity analysis would provide invaluable feedback as to what the right amount of sorties and activities would be needed to operate the KC-10 FTUs to meet the demands of the student training. Second, a follow-on comparative case study of the KC-10 PCO and ACIQ graduation rates and syllabus flow with that of other MWS FTU programs is worthy of merit. It would be interesting to determine in relation to other MWS FTUs that have a receiver AR requirement like the C-17 and C-5 schoolhouse if they have similar challenges in achieving both reasonable on-time graduation rates and a high level of quality training.

### Summary

AMC will continue to operate under reduced budgets both now and in the foreseeable future. The insatiable demand for tanker assets and the capabilities they bring will most likely increase as it has for every generation. As the KC-10 community rises to meet these expectations, it will require maximum utilization and creative scheduling of all available resources in both aircraft and personnel. High-caliber ACs are the lifeblood to provide the crucial flexibility to meet these requirements. Wasting resources in an inefficient training program can't be allowed to exist; otherwise, the MAF 2015 Training program will leave a legacy of failure. AMC has a both a fundamental responsibility and sacred obligation to ensure its mobility pilots are the best trained and equipped in the world.

This case study has highlighted some clear problem areas that affect the KC-10 PCO and ACIQ formal training courses on a regular basis. With reduced budgets, every training opportunity must be maximized and identified inefficiencies removed from the system. These KC-10 FTUs do their very best to produce highly qualified pilots, but are routinely operating in the red behind published syllabi timelines. They are each negatively impacted by severe training resource limitations, unreliable event scheduling and an unbalanced PFT capacity that completely sabotage their herculean efforts to produce pilots on-time on a consistent basis.

This paper has proposed some feasible recommendations that could maintain high quality training, increase overall system efficiency and improve final on-time graduation rates. AMC leadership must ensure adequate training resources are provided for the KC-10 community to thrive even under difficult conditions. This research project intended to establish a baseline of existing conditions after published syllabi were executed and then determine a plan of action for overcoming these KC-10 pilot production challenges. This case study has provided a shared vision that both AMC Senior Leadership and each location's Operations Group commanders can examine to strengthen the KC-10 Formal Training Units to optimal production rates.

## Appendix A - McGuire FY10 KC-10 PCO & ACIQ PFT Quota

McGuire - FY10 KC-10 PCO PFT QUOTA							
Class #	Class Start CSD		Phase IA Comp Date	Phase IB Comp Date	AD PCO	AFRC PCO	Remarks
1001M	12-Oct-09		23-Oct-09	10-Jan-10	2		AD No Fill 1 Slot
1002M	26-Oct-09		6-Nov-09	24-Jan-10	2		
1003M	9-Nov-09		20-Nov-09	7-Feb-10	2		
1004M	19-Nov-09		4-Dec-09	17-Feb-10	2		
1005M	7-Dec-09		18-Dec-09	7-Mar-10	1	1	
1006M	11-Jan-10		22-Jan-10	11-Apr-10	2		
1007M	25-Jan-10		5-Feb-10	25-Apr-10	2		
1008M	8-Feb-10		19-Feb-10	9-May-10	1	1	
1009M	22-Feb-10		5-Mar-10	23-May-10	1	1	
1010M	8-Mar-10		19-Mar-10	6-Jun-10	1	1	AFRC No Fill
1011M	8-Mar-10		19-Mar-10	6-Jun-10	2		
1012M	12-Apr-10		23-Apr-10	11-Jul-10	1	1	
1013M	14-Jun-10		25-Jun-10	12-Sep-10	2		
1014M	19-Jul-10		30-Jul-10	17-Oct-10	2		AD No Fill 1 Slot
1015M	13-Sep-10		24-Sep-10	12-Dec-10	1	1	AD took AFRC Turnback
1005T	7-May-10		20-May-10	5-Aug-10	0		Flew PhIB at McGuire
<b>Total</b>					<b>24</b>	<b>6</b>	<b>FY10 Sched PCO - 30</b>
<b>Actual</b>					<b>26</b>	<b>3</b>	<b>FY10 Actual PCO - 29</b>

McGuire - FY10 KC-10 ACIQ PFT QUOTA								
Class #	AD CSD	Ph IA AFRC FMS CSD	Phase IA Comp Date	Phase IB Comp Date	AD ACIQ	AFRC ACIQ	FMS ACIQ	Remarks
1004M	23-Oct-09	23-Oct-09	8-Jan-10	14-Mar-10		1		
1006M	6-Nov-09	6-Nov-09	22-Jan-10	28-Mar-10	1			
1009M	24-Nov-09	8-Dec-09	19-Feb-10	29-Apr-10	1			
1010M	8-Dec-09	22-Dec-09	5-Mar-10	13-May-10	1			
1017M	9-Jun-10	23-Jun-10	3-Sep-10	12-Nov-10	1			
1020M	1-Jun-10	15-Jun-10	25-Aug-10	4-Nov-10	1			AD Added
<b>Total</b>					<b>5</b>	<b>1</b>	<b>0</b>	<b>FY10 Sched ACIQ - 6</b>
<b>Actual</b>					<b>5</b>	<b>1</b>	<b>0</b>	<b>FY10 Actual ACIQ - 6</b>

## Appendix B – McGuire FY10 KC-10 PCO & ACIQ Grad Tracker

MCGUIRE - FY10 KC-10 PCO & ACIQ GRAD TRACKER																		
Class #	Sq	Actual Phase IA Comp Date	Sched Phase IB Comp Date	Actual Phase IB Comp Date	Tot Srts	Tot Hrs	Tnkr AR Time	Rcvr AR Time	Trans Time	Rcvr Cnx	Tnkr Cnx	Wx Cnx	MX Cnx	Oth Cnx	Rmks	Days Late	Tot Ph IB Days	
PCO																		
1001M	AD	23-Oct-09	10-Jan-10	1-Feb-10	14	61.8	6.2	7.4	6.5	10	6	3	4	0	Late	22	101	
1002M	AD	6-Nov-09	24-Jan-10	21-Jan-10	9	49.3	1.5	6.2	5.8	4	2	0	2	0			76	
1002M	AD	26-Oct-09	24-Jan-10	4-Jan-10	9	38.8	2	4	2.9	2	2	0	0	0			70	
1003M	AD	20-Nov-09	7-Feb-10	28-Jan-10	8	40.7	3.5	5.1	3.5	1	4	1	1	0			69	
1003M	AD	20-Nov-09	7-Feb-10	1-Feb-10	7	50.3	2.4	6.4	4.3	5	1	1	0	0			73	
1004M	AD	4-Dec-09	17-Feb-10	12-Feb-10	7	32.8	1.2	3.9	5.9	7	6	2	1	1			70	
1004M	AD	4-Dec-09	17-Feb-10	2-Mar-10	12	48.5	1.3	6.4	4	2	5	2	4	0	Late	13	88	
1005M	ARC	18-Dec-09	7-Mar-10	11-Mar-10	7	33.7	1.8	3.2	3.7	3	0	2	0	1	Late	4	83	
1005M	AD	18-Dec-09	7-Mar-10	1-Apr-10	23	71	2.3	6.6	4.6	1	0	4	5	3	Late	25	104	
1006M	AD	22-Jan-10	11-Apr-10	9-Apr-10	11	43.8	0.9	3.3	2.9	0	0	2	0	0			77	
1006M	AD	22-Jan-10	11-Apr-10	13-Apr-10	11	55.8	0.5	5.1	3	0	2	1	1	0	Late	2	81	
1007M	AD	5-Feb-10	25-Apr-10	22-Apr-10	11	56.1	1.7	5.7	3.3	0	0	0	1	0			76	
1007M	AD	5-Feb-10	25-Apr-10	23-Apr-10	12	59.4	2	3.9	2.8	0	0	1	0	0			77	
1008M	ARC	19-Feb-10	9-May-10	22-Apr-10	5	30.4	1.5	2	4.5	0	0	0	1	0			62	
1008M	AD	19-Feb-10	9-May-10	14-May-10	14	54	1	6.3	3.3	1	2	0	4	0	Late	5	84	
1009M	AD	5-Mar-10	23-May-10	27-Apr-10	5	24.8	0.6	3.1	2	0	0	0	0	0			53	
1009M	AD	5-Mar-10	23-May-10	14-May-10	11	45.9	4	5.9	2.9	0	0	0	3	1			70	
1010M	AD	19-Mar-10	6-Jun-10	28-Jun-10	17	84.5	4.2	8.9	5.7	0	1	0	3	0	Late	22	101	
1011M	AD	19-Mar-10	6-Jun-10	20-May-10	12	39.7	3.4	6	3.6	3	1	1	2	1			62	
1011M	AD	19-Mar-10	6-Jun-10	27-May-10	10	44.4	2.7	8.1	2.7	0	1	1	0	0			69	
1012M	ARC	23-Apr-10	11-Jul-10	23-Jun-10	9	28.1	2.2	2.5	2.8	2	0	1	2	0			61	
1012M	AD	23-Apr-10	11-Jul-10	28-Jun-10	10	43.6	3.4	4.9	3.6	0	1	1	1	0			66	
1013M	AD	25-Jun-10	12-Sep-10	16-Aug-10	11	36.9	3.7	3	2.4	1	1	1	1	1			52	
1013M	AD	25-Jun-10	12-Sep-10	8-Sep-10	17	67.8	4.5	6.5	5.7	0	1	0	1	1			75	
1014M	AD	30-Jul-10	17-Oct-10	16-Sep-10	10	29.2	1.2	3.5	2.8	0	0	0	3	1			48	
1015M	AD	24-Sep-10	12-Dec-10	20-Dec-10	16	64.6	1.9	11.0	6.7	5	2	2	3	0	Late	8	87	
1015M	AD	24-Sep-10	12-Dec-10	15-Feb-11	14	65.5	2.5	5.5	5.5	1	2	1	0	0	Late	65	144	
1005T	AD	20-May-10	5-Aug-10	29-Jun-10	7	31	2.1	4.4	4.6	0	0	0	0	0			40	
1005T	AD	20-May-10	5-Aug-10	1-Jul-10	9	35.1	2.9	4.4	3.1	0	1	0	1	0			42	
ACIQ																		
1004M	ARC	8-Jan-10	14-Mar-10	24-Mar-10	12	58.2	2.9	6.6	5.6	2	3	0	1	0	Late	10	75	
1006M	AD	22-Jan-10	28-Mar-10	9-Apr-10	17	82.5	2.5	7.3	6.6	1	3	0	1	0	Late	12	77	
1009M	AD	19-Feb-10	29-Apr-10	11-May-10	11	50.9	4	5.8	4.3	4	2	1	4	0	Late	12	81	
1010M	AD	5-Mar-10	13-May-10	5-May-10	9	32.6	2.2	3.6	4.5	0	0	0	0	1			61	
1017M	AD	3-Sep-10	12-Nov-10	27-Oct-10	12	59.7	4.5	7.6	5.8	3	4	1	1	0			54	
1020M	AD	25-Aug-10	4-Nov-10	2-Nov-10	12	59.0	1.5	7.5	7.4	1	4	0	0	0			69	

### Appendix C – Travis FY10 KC-10 PCO & ACIQ PFT Quota

TRAVIS - FY10 KC-10 PCO PFT QUOTA							
Class #	Class Start CSD		Phase IA Comp Date	Phase IB Comp Date	AD PCO	AFRC PCO	Remarks
1001T	19-Oct-09		30-Oct-09	17-Jan-10	1	1	AD took AFRC No Fill
1002T	7-Dec-09		18-Dec-09	7-Mar-10	1	1	
1003T	9-Apr-10		23-Apr-10	8-Jul-10	2		
1004T	12-Apr-10		23-Apr-10	11-Jul-10	2		
1005T	7-May-10		20-May-10	5-Aug-10	2		Flew Ph IB at McGuire
1006T	21-May-10		4-Jun-10	19-Aug-10	2		
1007T	21-May-10		4-Jun-10	19-Aug-10	2		Class Canx for 1016T
1008T	14-Jun-10		25-Jun-10	12-Sep-10		2	
1009T	19-Jul-10		30-Jul-10	17-Oct-10	2		
1010T	2-Aug-10		13-Aug-10	31-Oct-10	2		
1011T	23-Aug-10		3-Sep-10	21-Nov-10	1	1	Class Canx - AD/AFRC
1012T	23-Aug-10		3-Sep-10	21-Nov-10	2		
1013T	13-Sep-10		24-Sep-10	12-Dec-10	2		
1014T	13-Sep-10		24-Sep-10	12-Dec-10	1	1	Class Canx - AD/AFRC
1015T	18-Jan-10		29-Jan-10	18-Apr-10	2		AD Added
1016T	18-Jan-10		29-Jan-10	18-Apr-10	2		AD Added
Total					26	6	FY10 Sched PCO - 32
Actual					23	3	FY10 Actual PCO - 26

TRAVIS - FY10 KC-10 ACIQ PFT QUOTA								
Class #	AD CSD	Ph IA AFRC FMS CSD	Phase IA Comp Date	Phase IB Comp Date	AD ACIQ	AFRC ACIQ	FMS ACIQ	Remarks
1001T	18-Sep-09	2-Oct-09	18-Dec-09	21-Feb-10		1		AFRC No Fill
1006T	25-Feb-10	11-Mar-10	21-May-10	31-Jul-10	1			
1007T	25-Feb-10	11-Mar-10	21-May-10	31-Jul-10	1			
1007T	25-Feb-10	11-Mar-10	21-May-10	31-Jul-10			1	
1009T	10-Mar-10	24-Mar-10	4-Jun-10	13-Aug-10	1			
1012T	19-May-10	2-Jun-10	13-Aug-10	22-Oct-10		1		PIQ swap 1010T
1013T	19-May-10	2-Jun-10	13-Aug-10	22-Oct-10	1			
1014T	9-Jun-10	23-Jun-10	3-Sep-10	12-Nov-10			1	
1015T	9-Jun-10	23-Jun-10	3-Sep-10	12-Nov-10	1			
1016T	30-Jun-10	14-Jul-10	24-Sep-10	3-Dec-10	1			
1017T	30-Jun-10	14-Jul-10	24-Sep-10	3-Dec-10	1			
1017T	30-Jun-10	14-Jul-10	24-Sep-10	3-Dec-10			1	
Total					7	2	3	FY10 Sched ACIQ - 12
Actual					7	1	3	FY10 Actual ACIQ - 11

## Appendix D – Travis FY10 KC-10 PCO & ACIQ Grad Tracker

TRAVIS - FY10 KC-10 PCO & ACIQ GRAD TRACKER																		
Class #	Sq	Actual Phase IA Comm Date	Sched Phase IB Comm Date	Actual Phase IB Comm Date	Tot Srts	Tot Hrs	Tnkr AR Time	Rcvr AR Time	Trans Time	Rcvr Cnx	Tnkr Cnx	Wx Cnx	MX Cnx	Oth Cnx	Rmks	Days Late	Tot Ph IB Days	
PCO																		
1001T	AD	30-Oct-09	17-Jan-10	4-Mar-10	13	45.8	2.6	3.3	3.2	4	1	1	3	0	Late	46	125	
1001T	AD	30-Oct-09	17-Jan-10	6-Apr-10	15	63.0	4.5	3.7	4.9	5	1	0	2	0	Late	79	158	
1002T	ARC	18-Dec-09	7-Mar-10	6-Apr-10	15	47.8	6.4	4.8	5.8	5	1	1	4	0	Late	30	109	
1002T	AD	18-Dec-09	7-Mar-10	6-Apr-10	14	61.2	6.4	6.2	5.0	4	1	0	2	0	Late	30	109	
1003T	AD	23-Apr-10	8-Jul-10	29-Jun-10	9	39.1	5.5	3.8	3.1	1	0	0	1	0			67	
1003T	AD	23-Apr-10	8-Jul-10	17-Jun-10	8	32.6	5.1	4.0	3.5	2	1	0	1	0			55	
1004T	AD	23-Apr-10	11-Jul-10	17-Jun-10	6	25.4	0.5	3.0	2.5	1	2	0	2	0			55	
1004T	AD	23-Apr-10	11-Jul-10	3-Jun-10	5	17.8	0.5	2.2	1.8	1	1	0	0	0			41	
1006T	AD	4-Jun-10	19-Aug-10	21-Sep-10	18	83.7	7.1	9.9	7.7	9	7	0	2	0	Late	33	109	
1006T	AD	4-Jun-10	19-Aug-10	13-Sep-10	18	48.6	2.0	1.9	5.2	3	0	0	7	0	Late	25	101	
1008T	ARC	25-Jun-10	12-Sep-10	31-Aug-10	7	23.0	7.5	3.7	2.5	2	2	0	1	0			67	
1008T	ARC	25-Jun-10	12-Sep-10	9-Sep-10	9	22.9	3.3	3.2	4.1	0	3	0	2	0			76	
1009T	AD	30-Jul-10	17-Oct-10	20-Oct-10	10	32.9	2.5	1.8	1.4	4	5	0	3	0	Late	3	82	
1009T	AD	30-Jul-10	17-Oct-10	26-Sep-10	10	23.7	0.0	1.7	3.8	0	0	0	4	0			58	
1010T	AD	13-Aug-10	31-Oct-10	2-Dec-10	15	65.5	5.0	5.7	2.8	3	2	0	3	0	Late	32	111	
1010T	AD	13-Aug-10	31-Oct-10	26-Oct-10	9	40.9	6.3	2.5	3.0	2	1	0	1	0			74	
1012T	AD	3-Sep-10	21-Nov-10	18-Nov-10	9	46.7	2.8	5.7	5.5	3	1	0	1	0			76	
1012T	AD	3-Sep-10	21-Nov-10	24-Jan-11	22	107.9	6.1	9.6	4.7	0	3	2	5	1	Late	64	143	
1013T	AD	24-Sep-10	12-Dec-10	7-Dec-10	8	26.2	2.1	3.8	2.1	2	2	1	1	0			74	
1013T	AD	24-Sep-10	12-Dec-10	10-Feb-11	19	60.5	12.7	5.6	3.0	0	1	0	4	0	Late	60	139	
1015T	AD	29-Jan-10	18-Apr-10	6-May-10	14	54.2	8.5	8.5	5.5	2	1	0	0	1	Late	18	97	
1015T	AD	29-Jan-10	18-Apr-10	6-May-10	11	47.6	3.2	5.0	3.9	3	0	0	1	0	Late	18	97	
1016T	AD	29-Jan-10	18-Apr-10	20-May-10	15	58.3	6.5	4.3	3.2	3	1	0	3	1	Late	32	111	
1016T	AD	29-Jan-10	18-Apr-10	20-May-10	11	52.9	9.8	2.6	2.4	4	1	0	1	0	Late	32	111	
ACIQ																		
1006T	AD	21-May-10	31-Jul-10	21-Jul-10	11	59.0	4.3	4.7	5.8	0	0	0	3	0			61	
1007T	FMS	21-May-10	31-Jul-10	3-Aug-10	13	44.0	3.8	2.8	2.6	4	1	0	4	0	Late	3	74	
1007T	AD	21-May-10	31-Jul-10	26-Aug-10	13	47.5	4.0	5.9	5.5	5	2	0	3	0	Late	26	97	
1009T	AD	4-Jun-10	13-Aug-10	26-Aug-10	9	36.9	2.3	6.5	3.0	3	3	0	3	0	Late	13	83	
1012T	ARC	13-Aug-10	22-Oct-10	21-Dec-10	16	56.1	3.2	6.6	4.8	4	3	0	2	0	Late	60	130	
1013T	AD	13-Aug-10	22-Oct-10	5-Nov-10	8	30.5	1.9	2.1	2.8	3	3	0	1	0	Late	14	84	
1014T	FMS	3-Sep-10	12-Nov-10	26-Jan-11	16	52.8	6.2	6.7	6.6	1	2	1	2	0	Late	75	145	
1015T	AD	3-Sep-10	12-Nov-10	8-Jan-11	20	76.6	9.2	6.8	7.5	0	1	0	4	1	Late	57	127	
1016T	AD	24-Sep-10	3-Dec-10	29-Nov-10	7	23.4	0.5	3.7	5.2	0	1	0	1	0			66	
1017T	AD	24-Sep-10	3-Dec-10	15-Feb-11	18	73.0	7.2	8.4	7.4	0	1	0	1	1	Late	74	144	
1017T	FMS	24-Sep-10	3-Dec-10	1-Feb-11	20	68.7	7.0	4.5	6.2	0	1	2	3	1	Late	60	130	

## Appendix E - McGuire FY11 KC-10 PCO & ACIQ PFT Quota

McGuire - FY11 KC-10 PCO PFT QUOTA							
Class #	Class Start CSD		Phase IA Comp Date	Phase IB Comp Date	AD PCO	AFRC PCO	Remarks
1101M	11-Oct-10		22-Oct-10	9-Jan-11	2		
1102M	1-Nov-10		12-Nov-10	30-Jan-11	2		AD No Fill 1 Slot
1103M	1-Nov-10		12-Nov-10	30-Jan-11	2		Class Canx - AD
1104M	18-Nov-10		3-Dec-10	16-Feb-11	2		
1105M	3-Jan-11		14-Jan-11	3-Apr-11	2		
1106M	3-Jan-11		14-Jan-11	3-Apr-11	1	1	AD gave AFRC slot
1107M	14-Feb-11		25-Feb-11	15-May-11		2	Class Canx - AFRC
1108M	7-Mar-11		18-Mar-11	5-Jun-11	2		
1109M	28-Mar-11		8-Apr-11	26-Jun-11	1	1	
1110M	18-Apr-11		29-Apr-11	17-Jul-11	2		Class Canx - AD
1111M	9-May-11		20-May-11	7-Aug-11	2		
1112M	30-May-11		10-Jun-11	28-Aug-11	2		
1113M	18-Jul-11		29-Jul-11	16-Oct-11	2		
1114M	8-Aug-11		19-Aug-11	6-Nov-11		2	
1115M	26-Aug-11		9-Sep-11	24-Nov-11	2		
Total					24	6	FY11 Sched PCO - 30
Actual					19	4	FY11 Actual PCO - 23

McGuire - FY11 KC-10 ACIQ PFT QUOTA								
Class #	AD CSD	Ph IA AFRC FMS CSD	Phase IA Comp Date	Phase IB Comp Date	AD ACIQ	AFRC ACIQ	FMS ACIQ	Remarks
1102M	7-Oct-10	7-Oct-10	23-Dec-10	26-Feb-11	1			
1104M	17-Nov-10	17-Nov-10	4-Feb-11	8-Apr-11	1			
1108M	21-Dec-10	4-Jan-11	18-Mar-11	26-May-11	1			
1109M	1-Feb-11	15-Feb-11	29-Apr-11	7-Jul-11	1			
1110M	1-Feb-11	15-Feb-11	29-Apr-11	7-Jul-11	1			
1111M	22-Feb-11	8-Mar-11	20-May-11	28-Jul-11	1			
1113M	15-Mar-11	29-Mar-11	10-Jun-11	18-Aug-11	1			
1115M	5-Apr-11	19-Apr-11	1-Jul-11	8-Sep-11	1			
1118M	6-Jul-11	18-Jul-11	30-Sep-11	7-Dec-11	1			
Total					9	0	0	FY11 Sched ACIQ - 9
Actual					9	0	0	FY11 Actual ACIQ - 9

## Appendix F – McGuire FY11 KC-10 PCO & ACIQ Grad Tracker

MCGUIRE - FY11 KC-10 PCO & ACIQ GRAD TRACKER																		
Class #	Sq	Actual Phase IA Comp Date	Sched Phase IB Comp Date	Actual Phase IB Comp Date	Tot Srts	Tot Hrs	Tnkr AR Time	Rcvr AR Time	Trans Time	Rcvr Cnx	Tnkr Cnx	Wx Cnx	MX Cnx	Oth Cnx	Rmks	Days Late	Tot Ph IB Days	
PCO																		
1101M	AD	22-Oct-10	9-Jan-11	4-Jan-11	10	40.5	1.5	3.1	3.9	0	0	0	4	0			74	
1101M	AD	22-Oct-10	9-Jan-11	3-Mar-11	26	69.7	5.2	8.8	8.9	3	8	3	8	0	Late	53	132	
1102M	AD	12-Nov-10	30-Jan-11	15-Feb-11	19	52.7	3.5	4.4	3.6	2	1	2	7	0	Late	16	95	
1104M	AD	3-Dec-10	16-Feb-11	3-Mar-11	19	58.7	3.0	5.6	5.5	4	2	4	5	0	Late	15	90	
1104M	AD	3-Dec-10	16-Feb-11	3-Mar-11	17	34.7	1.5	4.9	3.3	5	3	2	5	0	Late	15	90	
1105M	AD	14-Jan-11	3-Apr-11	27-Mar-11	9	42.7	2.0	3.2	2.8	0	4	3	1	0			72	
1105M	AD	14-Jan-11	3-Apr-11	17-Apr-11	18	66.0	4.0	4.4	2.5	1	1	1	2	0	Late	14	93	
1106M	ARC	14-Jan-11	3-Apr-11	27-Mar-11	12	58.2	1.9	3.6	6.6	2	3	3	1	0			72	
1106M	AD	14-Jan-11	3-Apr-11	8-Apr-11	9	39.7	1.4	3.2	2.3	5	1	2	1	0	Late	5	84	
1108M	AD	18-Mar-11	5-Jun-11	10-May-11	10	42.7	1.2	4.3	1.6	0	0	0	2	0			53	
1108M	AD	18-Mar-11	5-Jun-11	16-May-11	6	25.0	3.0	0.5	2.0	0	0	0	0	0			59	
1109M	AD	8-Apr-11	26-Jun-11	23-Jun-11	11	48.5	1.5	5.4	2.1	3	0	0	1	0			76	
1109M	ARC	8-Apr-11	26-Jun-11	26-Jun-11	5	18.8	0.9	2.0	2.7	1	0	0	1	0			79	
1111M	AD	20-May-11	7-Aug-11	30-Jun-11	9	52.6	2.8	6.0	5.0	0	0	0	0	0			41	
1111M	AD	20-May-11	7-Aug-11	15-Jul-11	12	48.8	3.8	5.7	4.6	1	0	0	2	0			56	
1112M	AD	10-Jun-11	28-Aug-11	8-Aug-11	10	66.3	4.6	6.2	6.6	4	3	0	0	2			59	
1112M	AD	10-Jun-11	28-Aug-11	12-Aug-11	11	53.2	4.8	6.2	3.9	4	5	0	1	0			63	
1113M	AD	29-Jul-11	16-Oct-11	27-Sep-11	11	37.1	4.5	6	4.3	5	0	0	1	0			60	
1113M	AD	29-Jul-11	16-Oct-11	27-Sep-11	14	50.4	5.9	7.3	3.6	1	1	0	1	0			60	
1114M	ARC	19-Aug-11	6-Nov-11	20-Sep-11	7	33.3	3.7	4.7	4.6	0	0	0	1	0			32	
1114M	ARC	19-Aug-11	6-Nov-11	6-Oct-11	10	46.0	2.8	4.4	5.8	1	2	0	0	0			48	
1115M	AD	9-Sep-11	24-Nov-11	25-Oct-11	11	52.4	5.1	7.0	5.5	2	5	0	2	1			46	
1115M	AD	9-Sep-11	24-Nov-11	22-Nov-11	14	47.2	5.2	7.6	4.7	6	3	0	6	0			74	
ACIQ																		
1102M	AD	23-Dec-10	26-Feb-11	19-Apr-11	29	109.4	8.3	8.0	9.7	8	4	4	4	0	Late	52	117	
1104M	AD	4-Feb-11	8-Apr-11	29-Apr-11	18	55.9	3.3	4.7	5.3	4	3	2	2	0	Late	21	84	
1108M	AD	18-Mar-11	26-May-11	20-May-11	9	41.5	0.5	5.3	3.9	4	6	2	0	0			63	
1109M	AD	29-Apr-11	7-Jul-11	28-Jul-11	18	81.1	3.3	9.5	7.0	1	2	1	5	0	Late	21	90	
1110M	AD	29-Apr-11	7-Jul-11	30-Jun-11	11	47.7	1.5	3.6	4.5	3	1	0	1	0			62	
1111M	AD	20-May-11	28-Jul-11	19-Jul-11	14	59.5	2.6	8.6	5.8	2	1	0	1	0			60	
1113M	AD	10-Jun-11	18-Aug-11	23-Aug-11	14	66.7	6.6	7.0	6.6	2	3	1	0	1	Late	5	74	
1115M	AD	1-Jul-11	8-Sep-11	9-Sep-11	12	54.3	3	8.2	5.8	5	4	1	1	0	Late	1	70	
1118M	AD	30-Sep-11	7-Dec-11	6-Dec-11	12	54.6	2.0	6.2	6.1	8	3	0	1	2			67	

## Appendix G – Travis FY11 KC-10 PCO & ACIQ PFT Quota

TRAVIS - FY11 KC-10 PCO PFT QUOTA							
Class #	Class Start CSD		Phase IA Comp Date	Phase IB Comp Date	AD PCO	AFRC PCO	Remarks
1101T	18-Oct-10		29-Oct-10	16-Jan-11	2		
1102T	5-Nov-10		19-Nov-10	3-Feb-11	2		
1103T	3-Jan-11		14-Jan-11	3-Apr-11	1	1	AD took AFRC Turnback
1104T	14-Jan-11		28-Jan-11	14-Apr-11	2		
1105T	31-Jan-11		11-Feb-11	1-May-11	2		Class Canx - AD
1106T	18-Feb-11		4-Mar-11	19-May-11	2		
1107T	28-Mar-11		8-Apr-11	26-Jun-11	2		
1108T	28-Mar-11		8-Apr-11	26-Jun-11	2		Class Canx - AD
1109T	2-May-11		13-May-11	31-Jul-11		2	Class Canx - AFRC
1110T	2-May-11		13-May-11	31-Jul-11	2		Class Canx - AD
1111T	16-May-11		27-May-11	14-Aug-11	2		
1112T	13-Jun-11		24-Jun-11	11-Sep-11	2		AFRC took AD Turnback
1113T	22-Aug-11		2-Sep-11	20-Nov-11	1	1	Class Canx - AD/AFRC No Fill
<b>Total</b>					<b>22</b>	<b>4</b>	<b>FY11 Sched PCO - 26</b>
<b>Actual</b>					<b>15</b>	<b>1</b>	<b>FY11 Actual PCO - 16</b>

TRAVIS - FY11 KC-10 ACIQ PFT QUOTA								
Class #	AD CSD	Ph IA AFRC FMS CSD	Phase IA Comp Date	Phase IB Comp Date	AD ACIQ	AFRC ACIQ	FMS ACIQ	Remarks
1102T	20-Sep-10	4-Oct-10	22-Dec-10	23-Feb-11		1		
1105T	25-Oct-10	8-Nov-10	28-Jan-11	30-Mar-11	1			
1106T	25-Oct-10	8-Nov-10	28-Jan-11	30-Mar-11	1			
1108T	1-Dec-10	15-Dec-10	4-Mar-11	6-May-11	1			
1110T	24-Dec-10	7-Jan-11	25-Mar-11	29-May-11		1		
1112T	10-Jan-11	24-Jan-11	8-Apr-11	15-Jun-11	1			
1112T	10-Jan-11	24-Jan-11	8-Apr-11	15-Jun-11	1			
1114T	1-Mar-11	15-Mar-11	27-May-11	4-Aug-11	1			
1116T	6-Jun-11	20-Jun-11	2-Sep-11	9-Nov-11		1		AD took AFRC Turnback
1117T	4-Jul-11	18-Jul-11	30-Sep-11	7-Dec-11	1			
<b>Total</b>					<b>7</b>	<b>3</b>	<b>0</b>	<b>FY11 Sched ACIQ - 10</b>
<b>Actual</b>					<b>8</b>	<b>2</b>	<b>0</b>	<b>FY11 Actual ACIQ -10</b>

## Appendix H – Travis FY11 KC-10 PCO & ACIQ Grad Tracker

TRAVIS - FY11 KC-10 PCO & ACIQ GRAD TRACKER																		
Class #	Sq	Actual Phase IA Comp Date	Sched Phase IB Comp Date	Actual Phase IB Comp Date	Tot Srts	Tot Hrs	Tnkr AR Time	Rcvr AR Time	Trans Time	Rcvr Cnx	Tnkr Cnx	Wx Cnx	MX Cnx	Oth Cnx	Rmks	Days Late	Tot Ph IB Days	
PCO																		
1101T	AD	29-Oct-10	16-Jan-11	15-Feb-11	11	36.9	4.5	3.6	1.7	0	0	1	1	0	Late	30	109	
1101T	AD	29-Oct-10	16-Jan-11	25-Feb-11	14	44.9	3.1	4.9	1.6	0	1	1	3	0	Late	40	119	
1102T	AD	19-Nov-10	3-Feb-11	8-Feb-11	7	28.3	2.8	2.4	3.9	0	0	0	1	0	Late	5	81	
1102T	AD	19-Nov-10	3-Feb-11	1-Mar-11	11	37.0	4.8	3.8	3.1	0	0	0	2	0	Late	26	102	
1103T	AD	14-Jan-11	3-Apr-11	8-Mar-11	7	26.8	2.9	5.1	2.0	1	0	0	1	0			53	
1103T	AD	14-Jan-11	3-Apr-11	3-Mar-11	7	28.4	3.3	4.5	1.8	1	0	0	1	0			48	
1104T	AD	28-Jan-11	14-Apr-11	30-Mar-11	10	35.5	2.6	2.8	1.7	0	0	0	0	0			61	
1104T	AD	28-Jan-11	14-Apr-11	5-Apr-11	12	41.1	3.8	4.3	4.5	2	2	0	1	0			67	
1106T	AD	4-Mar-11	19-May-11	12-May-11	9	27.5	2.1	1.1	2.8	0	0	1	2	0			69	
1106T	AD	4-Mar-11	19-May-11	23-May-11	10	43.6	4.7	2.4	2.7	0	0	1	0	0	Late	4	80	
1107T	AD	8-Apr-11	26-Jun-11	10-Jun-11	7	34.8	2.7	2.6	2.0	0	0	0	0	0			63	
1107T	AD	8-Apr-11	26-Jun-11	13-Jun-11	8	34.2	3.5	3.3	1.7	0	0	0	0	1			66	
1111T	AD	27-May-11	14-Aug-11	20-Jul-11	6	28.3	1.0	3.0	1.0	1	0	0	0	0			54	
1111T	AD	27-May-11	14-Aug-11	11-Aug-11	9	40.5	6.6	3.4	2.6	0	0	0	0	0			76	
1112T	ARC	24-Jun-11	11-Sep-11	18-Aug-11	5	19.9	4.6	3.6	3.1	2	2	0	1	0			55	
1112T	AD	24-Jun-11	11-Sep-11	29-Sep-11	15	66.2	5.5	7.2	5.1	1	1	0	1	0	Late	18	97	
ACIQ																		
1102T	ARC	22-Dec-10	23-Feb-11	16-Feb-11	6	29.3	1.5	3.7	3.7	0	0	0	0	0			56	
1105T	6	28-Jan-11	30-Mar-11	2-May-11	14	59.8	3.5	3.6	4.5	0	1	0	1	0	Late	33	94	
1106T	9	28-Jan-11	30-Mar-11	30-Mar-11	14	38.6	2.8	3.9	6.0	1	1	0	5	0			61	
1108T	9	4-Mar-11	6-May-11	6-Jun-11	16	58.8	4.0	4.7	6.0	3	4	0	2	0	Late	31	94	
1110T	ARC	25-Mar-11	29-May-11	7-Jun-11	12	35.8	3.2	4.4	2.3	5	4	0	3	0	Late	9	74	
1112T	6	8-Apr-11	15-Jun-11	13-Jun-11	9	40.2	3.4	3.5	1.7	2	1	0	1	0			66	
1112T	9	8-Apr-11	15-Jun-11	20-Jun-11	12	50.4	4.3	3.4	3.6	1	0	0	2	0	Late	5	73	
1114T	6	27-May-11	4-Aug-11	12-Aug-11	12	51.1	1.5	1.9	3.0	0	2	0	2	0	Late	8	77	
1116T	6	2-Sep-11	9-Nov-11	25-Oct-11	12	36.1	7.6	3.5	2.7	0	1	0	2	0			53	
1117T	9	30-Sep-11	7-Dec-11	22-Nov-11	11	44.7	6.1	6.0	4.9	0	0	0	0	0			53	

## Appendix I - McGuire FY12 KC-10 PCO & ACIQ PFT Quota

McGuire - FY12 KC-10 PCO PFT QUOTA							
Class #	Class Start CSD		Phase IA Comp Date	Phase IB Comp Date	AD PCO	AFRC PCO	Remarks
1201M	10-Oct-11		21-Oct-11	8-Jan-12	2		
1202M	24-Oct-11		4-Nov-11	22-Jan-12	2		Class Canx - AD IAC 1215M
1203M	7-Nov-11		18-Nov-11	5-Feb-12	2		
1204M	23-Jan-12		3-Feb-12	22-Apr-12	2		
1205M	20-Feb-12		2-Mar-12	20-May-12	2		
1206M	5-Mar-12		16-Mar-12	3-Jun-12	2		
1207M	19-Mar-12		30-Mar-12	17-Jun-12	1	1	
1208M	2-Apr-12		13-Apr-12	1-Jul-12	2		
1209M	16-Apr-12		27-Apr-12	15-Jul-12	2		
1210M	14-May-12		25-May-12	12-Aug-12	1	1	
1211M	28-May-12		8-Jun-12	26-Aug-12	2		
1212M	29-Jun-12		13-Jul-12	27-Sep-12	2		
1213M	13-Aug-12		24-Aug-12	11-Nov-12	2		Class Canx - AFRC IAC 1216M
1214M	24-Aug-12		7-Sep-12	22-Nov-12	2		
1215M	17-Sep-12		28-Sep-12	16-Dec-12	1	1	
<b>Total</b>					<b>27</b>	<b>3</b>	<b>FY12 Sched PCO - 30</b>
<b>Actual</b>					<b>23</b>	<b>3</b>	<b>FY12 Actual PCO - 26</b>

McGuire - FY12 KC-10 ACIQ PFT QUOTA								
Class #	AD CSD	Ph IA AFRC FMS CSD	Phase IA Comp Date	Phase IB Comp Date	AD ACIQ	AFRC ACIQ	FMS ACIQ	Remarks
1202M	19-Oct-11	2-Nov-11	20-Jan-12	23-Mar-12		1		AFRC No Fill
1204M	18-Nov-11	2-Dec-11	17-Feb-12	22-Apr-12	1			
1206M	20-Dec-11	3-Jan-12	16-Mar-12	24-May-12	1			
1208M	3-Jan-12	17-Jan-12	30-Mar-12	7-Jun-12		1		
1210M	13-Mar-12	27-Mar-12	8-Jun-12	16-Aug-12		1		AFRC No Fill
1211M	27-Mar-12	10-Apr-12	22-Jun-12	30-Aug-12	1			
1214M	8-Jun-12	22-Jun-12	7-Sep-12	11-Nov-12	1			
1215M	8-Jun-12	22-Jun-12	7-Sep-12	11-Nov-12	1			
1216M	2-Jul-12	16-Jul-12	28-Sep-12	5-Dec-12	1			
1217M	2-Jul-12	16-Jul-12	28-Sep-12	5-Dec-12	1			
<b>Total</b>					<b>7</b>	<b>3</b>	<b>0</b>	<b>FY12 Sched ACIQ - 10</b>
<b>Actual</b>					<b>7</b>	<b>1</b>	<b>0</b>	<b>FY12 Actual ACIQ - 8</b>

## Appendix J – McGuire FY12 KC-10 PCO & ACIQ Grad Tracker

MCGUIRE - FY12 KC-10 PCO & ACIQ GRAD TRACKER																	
Class #	Sq	Actual Phase IA Comp Date	Sched Phase IB Comp Date	Actual Phase IB Comp Date	Tot Srts	Tot Hrs	Tnkr AR Time	Revr AR Time	Trans Time	Revr Cnx	Tnkr Cnx	Wx Cnx	MX Cnx	Oth Cnx	Rmks	Days Late	Tot Ph IB Days
<b>PCO</b>																	
1201M	AD	21-Oct-11	8-Jan-12	10-Dec-11	8	33.2	3.2	2.3	5.8	1	1	0	0	0			50
1201M	AD	21-Oct-11	8-Jan-12	21-Dec-11	12	57.5	2.1	6.0	7.9	0	3	0	1	0			61
1203M	AD	18-Nov-11	5-Feb-12	20-Jan-12	9	66.4	3.8	9.7	8.7	1	5	0	1	0			63
1203M	AD	18-Nov-11	5-Feb-12	1-Feb-12	7	53.2	4.0	7.3	7.1	1	5	0	0	0			75
1204M	AD	3-Feb-12	22-Apr-12	27-Mar-12	6	43.2	1.8	6.8	8.3	2	2	0	0	0			53
1204M	AD	3-Feb-12	22-Apr-12	12-Apr-12	8	63.4	11.3	7.0	6.6	3	2	0	0	0			69
1205M	AD	2-Mar-12	20-May-12	30-Apr-12	8	46.4	4.6	5.6	3.7	6	3	0	1	0			59
1205M	AD	2-Mar-12	20-May-12	26-Apr-12	6	36.5	1.0	4.4	3.1	7	3	0	1	0			55
1206M	AD	16-Mar-12	3-Jun-12	8-May-12	8	43.6	2.3	3.5	6.9	6	2	0	0	0			53
1206M	AD	16-Mar-12	3-Jun-12	22-May-12	8	49.1	3.0	5.9	5.1	1	4	0	1	0			67
1207M	ARC	30-Mar-12	17-Jun-12	24-May-12	5	32.9	1.8	4.6	2.9	0	1	0	0	0			55
1207M	AD	30-Mar-12	17-Jun-12	22-May-12	5	41.5	2.3	6.4	4.3	2	1	0	0	0			53
1208M	AD	13-Apr-12	1-Jul-12	21-Jun-12	10	66.1	1.8	5.2	4.7	0	0	0	2	0			69
1208M	AD	13-Apr-12	1-Jul-12	29-Jun-12	10	53.4	5.7	4.9	7.1	0	1	0	0	0			77
1209M	AD	27-Apr-12	15-Jul-12	21-Jun-12	6	35.0	0.9	5.7	2.4	0	1	0	1	0			55
1209M	AD	27-Apr-12	15-Jul-12	19-Jul-12	15	85.0	3.9	8.2	6.7	2	0	1	1	0	Late	4	83
1210M	AD	25-May-12	12-Aug-12	30-Jul-12	5	36.3	2.8	7.1	2.8	1	0	1	2	0			66
1210M	ARC	25-May-12	12-Aug-12	20-Sep-12	14	56.2	0.5	6.2	5.1	1	0	0	0	0	Late	39	118
1211M	AD	8-Jun-12	26-Aug-12	14-Aug-12	8	34.6	1.5	6.3	3.6	0	0	1	0	0			67
1211M	AD	8-Jun-12	26-Aug-12	17-Aug-12	9	51.4	0.6	10.1	4.0	0	0	0	0	0			70
1212M	AD	13-Jul-12	27-Sep-12	27-Sep-12	10	44.3	3.2	5.4	5.1	2	0	0	1	0			76
1212M	AD	13-Jul-12	27-Sep-12	5-Oct-12	8	61.6	1.7	9.7	4.5	4	3	1	1	2	Late	8	84
1214M	AD	7-Sep-12	22-Nov-12	3-Dec-12	7	40.3	2.3	6	3.2	0	0	1	1	1	Late	11	87
1214M	AD	7-Sep-12	22-Nov-12	13-Dec-12	11	48.3	1	4.7	4.2	0	0	0	1	0	Late	21	97
1215M	AD	28-Sep-12	16-Dec-12	6-Dec-12	7	29.4	0.8	3.4	4.1	0	2	0	0	0			69
1215M	ARC	28-Sep-12	16-Dec-12	10-Dec-12	7	31.9	1.5	2.1	4	1	0	1	1	0			73
<b>ACIQ</b>																	
1204M	AD	17-Feb-12	22-Apr-12	26-Mar-12	7	37.1	0.8	6.9	5.3	2	3	0	0	0			38
1206M	AD	16-Mar-12	24-May-12	7-Jun-12	11	71.2	3.7	9.1	9.5	5	4	1	0	0	Late	14	83
1208M	ARC	30-Mar-12	7-Jun-12	13-Jul-12	9	56.1	5.1	8.9	6.6	3	1	0	1	0	Late	36	105
1211M	AD	22-Jun-12	30-Aug-12	30-Aug-12	7	48.6	2.3	5.4	5.0	3	2	0	2	0			69
1214M	AD	7-Sep-12	11-Nov-12	20-Dec-12	10	58	1.4	6.6	4.3	0	0	0	0	0	Late	39	104
1215M	AD	7-Sep-12	11-Nov-12	20-Dec-12	9	41.7	2.4	4.4	3.7	2	0	0	4	0	Late	39	104
1216M	AD	28-Sep-12	5-Dec-12	21-Feb-13	9	65.0	4.4	7.4	6.1	3	2	1	2	0	Late	78	146
1217M	AD	28-Sep-12	5-Dec-12	10-Jan-13	10	58	1.4	6.6	4.3	0	0	0	0	0	Late	36	104

## Appendix K – Travis FY12 KC-10 PCO & ACIQ PFT Quota

TRAVIS - FY12 KC-10 PCO PFT QUOTA							
Class #	Class Start CSD		Phase IA Comp Date	Phase IB Comp Date	AD PCO	AFRC PCO	Remarks
1201T	24-Oct-11		4-Nov-11	22-Jan-12	2		
1202T	24-Oct-11		4-Nov-11	22-Jan-12	2		
1203T	9-Dec-11		22-Dec-11	8-Mar-12	2		
1204T	30-Dec-11		13-Jan-12	29-Mar-12	2		
1205T	23-Jan-12		3-Feb-12	22-Apr-12	1	1	
1206T	12-Mar-12		23-Mar-12	10-Jun-12	2		
1207T	2-Apr-12		13-Apr-12	1-Jul-12	1	1	
1208T	16-Apr-12		27-Apr-12	15-Jul-12	2		
1209T	16-Apr-12		27-Apr-12	15-Jul-12	1	1	AFRC No Fill 1 Slot
1210T	9-Jul-12		20-Jul-12	7-Oct-12	2		
1211T	9-Jul-12		20-Jul-12	7-Oct-12	2		
1212T	6-Aug-12		17-Aug-12	4-Nov-12	2		
1213T	17-Sep-12		28-Sep-12	16-Dec-12	1	1	
<b>Total</b>					<b>22</b>	<b>4</b>	<b>FY12 Sched PCO - 26</b>
<b>Actual</b>					<b>22</b>	<b>3</b>	<b>FY12 Actual PCO - 25</b>

TRAVIS - FY12 KC-10 ACIQ PFT QUOTA								
Class #	AD CSD	Ph IA AFRC FMS CSD	Phase IA Comp Date	Phase IB Comp Date	AD ACIQ	AFRC ACIQ	FMS ACIQ	Remarks
1203T	11-Oct-11	25-Oct-11	13-Jan-12	23-Mar-12	1			AFPC - AD No Fill
1204T	1-Nov-11	15-Nov-11	3-Feb-12	13-Apr-12		1		AFRC No Fill
1205T	1-Nov-11	15-Nov-11	3-Feb-12	13-Apr-12		1		
1206T	23-Nov-11	7-Dec-11	24-Feb-12	4-May-12	1			
1207T	23-Nov-11	7-Dec-11	24-Feb-12	4-May-12	1			
1209T	16-Jan-12	30-Jan-12	13-Apr-12	22-Jun-12	1			
1212T	26-Mar-12	9-Apr-12	22-Jun-12	31-Aug-12	1			
1216T	21-May-12	4-Jun-12	17-Aug-12	26-Oct-12	1			
1217T	2-Jul-12	16-Jul-12	28-Sep-12	7-Dec-12	1			
<b>Total</b>					<b>7</b>	<b>2</b>	<b>0</b>	<b>FY12 Sched ACIQ - 9</b>
<b>Actual</b>					<b>6</b>	<b>0</b>	<b>0</b>	<b>FY12 Actual ACIQ - 6</b>

## Appendix L – Travis FY12 KC-10 PCO & ACIQ Grad Tracker

TRAVIS - FY12 KC-10 PCO & ACIQ GRAD TRACKER																	
Class #	Sq	Actual Phase IA Comp Date	Sched Phase IB Comp Date	Actual Phase IB Comp Date	Tot Srts	Tot Hrs	Tnkr AR Time	Rcvr AR Time	Trans Time	Rcvr Cnx	Tnkr Cnx	Wx Cnx	MX Cnx	Oth Cnx	Rmks	Days Late	Tot Ph IB Days
<b>PCO</b>																	
1201T	AD	4-Nov-11	22-Jan-12	18-Jan-12	11	48.5	4.5	5.2	2.8	1	0	0	0	0			75
1201T	AD	4-Nov-11	22-Jan-12	12-Jan-12	12	56.4	4.2	3.1	3.0	0	2	0	2	0			69
1202T	AD	4-Nov-11	22-Jan-12	10-Feb-12	17	67.6	6.7	2.0	2.6	0	1	0	3	0	Late	19	98
1202T	AD	4-Nov-11	22-Jan-12	15-Feb-12	21	78.7	11.7	8.2	3.3	1	2	1	2	1	Late	24	103
1203T	AD	22-Dec-11	8-Mar-12	16-Feb-12	12	49.6	6.5	6.5	3.2	3	3	0	1	0			56
1203T	AD	22-Dec-11	8-Mar-12	15-Feb-12	14	55.7	9.0	4.8	6.5	0	0	0	2	0			55
1204T	AD	13-Jan-12	29-Mar-12	24-Feb-12	7	33.2	4.0	1.9	2.5	0	1	0	0	0			42
1204T	AD	13-Jan-12	29-Mar-12	29-Mar-12	13	42.4	7.5	3.9	4.2	0	0	0	4	0			76
1205T	AD	3-Feb-12	22-Apr-12	19-Apr-12	19	95.6	6.8	5.3	4.1	0	4	1	3	0			76
1205T	ARC	3-Feb-12	22-Apr-12	8-Mar-12	7	27.0	2.5	2.3	2.0	0	1	0	1	0			34
1206T	AD	23-Mar-12	10-Jun-12	1-Jun-12	9	35.8	1.9	3.0	1.8	2	1	0	1	0			70
1206T	AD	23-Mar-12	10-Jun-12	24-May-12	11	47.5	2.5	4.7	3.5	2	3	0	1	0			62
1207T	AD	13-Apr-12	1-Jul-12	14-Jun-12	9	35.9	2.2	2.7	2.8	1	2	1	0	0			62
1207T	ARC	13-Apr-12	1-Jul-12	1-Jun-12	9	41.3	3.3	2.3	2.5	0	2	0	1	0			49
1208T	AD	27-Apr-12	15-Jul-12	10-Jul-12	10	45.4	4.0	3.0	4.0	1	3	0	2	1			74
1208T	AD	27-Apr-12	15-Jul-12	13-Jul-12	11	53.0	7.1	3.4	4.8	1	3	0	3	1			77
1209T	AD	27-Apr-12	15-Jul-12	20-Jul-12	12	54.1	7.0	5.0	5.4	3	2	0	0	0	Late	5	84
1210T	AD	20-Jul-12	7-Oct-12	14-Sep-12	9	42.0	3.9	3.3	2.2	0	0	0	1	0			56
1210T	AD	20-Jul-12	7-Oct-12	26-Sep-12	13	66.5	5.8	5.1	2.7	2	2	0	1	0			68
1211T	AD	20-Jul-12	7-Oct-12	14-Sep-12	11	60.6	2.3	6.9	5.3	1	0	0	0	0			56
1211T	AD	20-Jul-12	7-Oct-12	11-Oct-12	12	46.4	3.6	4.2	2.9	3	3	0	1	0	Late	4	83
1212T	AD	17-Aug-12	4-Nov-12	2-Nov-12	10	46.6	3.1	3.9	3.4	3	2	0	0	0			77
1212T	AD	17-Aug-12	4-Nov-12	25-Oct-12	11	51.5	4.6	4.4	1.7	2	2	0	0	0			69
1213T	AD	28-Sep-12	16-Dec-12	22-Jan-13	16	67.2	10.2	5.2	4.6	3	0	1	3	0	Late	37	116
1213T	ARC	28-Sep-12	16-Dec-12	20-Nov-12	7	29.5	3.7	2.7	2.6	3	3	0	0	0			53
<b>ACIQ</b>																	
1206T	AD	24-Feb-12	4-May-12	3-May-12	13	56.3	2.5	5.3	4.2	0	1	0	2	0			69
1207T	AD	24-Feb-12	4-May-12	17-May-12	14	48.8	4.3	5.1	5.8	2	1	0	3	0	Late	13	83
1209T	AD	13-Apr-12	22-Jun-12	14-Jun-12	12	56.9	5.0	5.6	4.9	2	2	0	0	0			62
1212T	AD	22-Jun-12	31-Aug-12	14-Sep-12	20	70.0	5.8	8.3	5.3	4	1	0	5	0	Late	14	84
1216T	AD	17-Aug-12	26-Oct-12	25-Oct-12	11	53.5	2.4	6.1	3.4	2	0	0	0	0			69
1217T	AD	28-Sep-12	7-Dec-12	26-Dec-12	14	59.2	8.2	5.2	6.8	3	2	0	1		Late	19	89

## **Glossary**

AC	Aircraft Commander
ACIQ	Aircraft Commander Initial Qualification
AD	Active Duty
AETC	Air Education and Training Command
AFIT	Air Force Institute of Technology
AFRC	Air Force Reserve Command
AMC	Air Mobility Command
AMW	Air Mobility Wing
AMMP	Air Mobility Master Plan
ANG	Air National Guard
AOR	Area of Responsibility
AR	Air Refueling
ARS	Air Refueling Squadron
ATCA	Advanced Tanker Cargo Aircraft
ATS	Aircrew Training System
BO	Boom Operator
CBT	Computer-Based-Training
CCTS	Combat Crew Training School
CENTCOM	Central Command
CPT	Cockpit Procedures Trainer
DNIF	Duty Not Involving Flying
DoD	Department of Defense
FAIP	First Assignment Instructor Pilot
FE	Flight Engineer
FTD	Flight Training Device
FTU	Formal Training Unit
GRP	Graduate Research Paper
GWOT	Global War on Terror
IAC	Instructor Aircraft Commander
MAC	Military Airlift Command
MAF	Mobility Air Forces
MAJCOM	Major Command
MCI	Multi-Command Instruction
MCT	Mission Certification Training
MOB	Main Operating Base
MPA	Manpower Personnel Appropriations
MPD	Mobility Pilot Development

MR	Mission Ready
MWS	Major Weapon System
NATO	North Atlantic Treaty Organization
OG	Operations Group
O&M	Operations & Maintenance
OSS	Operations Support Squadron
PCO	Pilot Checkout Course
PFT	Programmed Flying Training
PIQ	Pilot Initial Qualification
PRB	Progress Review Board
PRQ	Pilot Re-Qualification
RQ	Requalification
SAC	Strategic Air Command
SOC	Senior Officer Course
TACC	Tanker Airlift Control Center
TDY	Temporary Duty
TRP	Training Review Panel
WST	Weapons System Trainer

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## **Vita**

Major Rob “Preach” McAllister graduated from O’Fallon Township High School in O’Fallon, Illinois in 1994. He attended the United States Air Force Academy Preparatory School and then was commissioned through the United States Air Force Academy in Colorado Springs, Colorado in June of 1999 earning a Bachelor of Science degree in Civil Engineering. His first assignment was at Cannon AFB, New Mexico as a planning officer in the 27th Civil Engineering Squadron.

Major McAllister’s second assignment was at Laughlin AFB, Texas as a student in Joint Specialized Undergraduate Pilot Training beginning in July of 2000. He earned his wings in August of 2001 and then subsequently served over 10 years consecutively on two operational tours flying the Boeing KC-10 Extender at both McGuire AFB, New Jersey and Travis AFB, California. During those two assignments he deployed nine times in support of Operations ENDURING FREEDOM and IRAQI FREEDOM. From June 2010 until April 2012, he was the Chief of the KC-10 Formal Training Unit at Travis AFB. In May 2012, he entered the Advanced Study of Air Mobility program and will earn a Master of Science in Logistics from the Air Force Institute of Technology. Upon graduation, Major McAllister will be assigned to a NATO Staff tour as part of the Deployable Air Command and Control Center located at Poggio Renatico, Italy.

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